

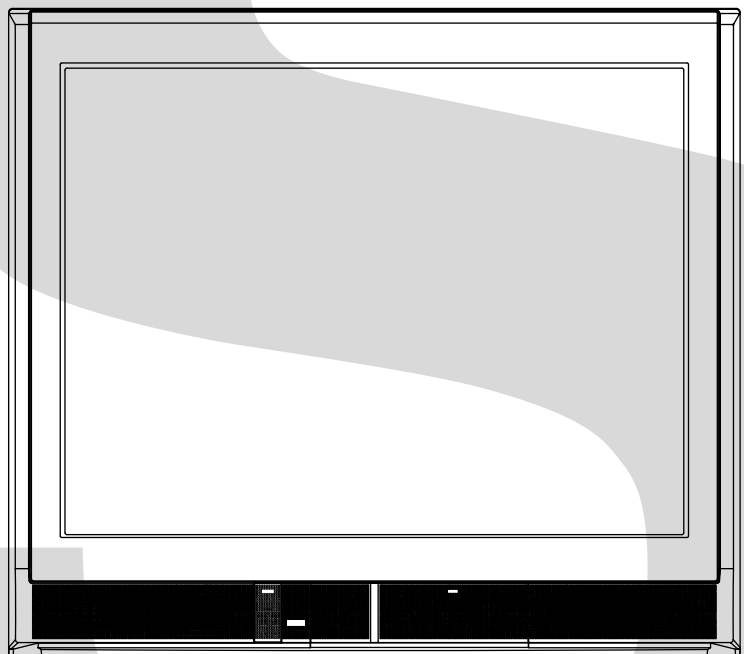
# TOSHIBA

FILE NO. 050-200523  
(MFR'S VERSION A)

## SERVICE MANUAL

## COLOR TELEVISION

# **32AF45** **32AF45C**



## SERVICING NOTICES ON CHECKING

### 1. KEEP THE NOTICES


As for the places which need special attentions, they are indicated with the labels or seals on the cabinet, chassis and parts. Make sure to keep the indications and notices in the operation manual.

### 2. AVOID AN ELECTRIC SHOCK

There is a high voltage part inside. Avoid an electric shock while the electric current is flowing.

### 3. USE THE DESIGNATED PARTS

The parts in this equipment have the specific characters of incombustibility and withstand voltage for safety. Therefore, the part which is replaced should be used the part which has the same character.

Especially as to the important parts for safety which is indicated in the circuit diagram or the table of parts as a  mark, the designated parts must be used.

### 4. PUT PARTS AND WIRES IN THE ORIGINAL POSITION AFTER ASSEMBLING OR WIRING

There are parts which use the insulation material such as a tube or tape for safety, or which are assembled in the condition that these do not contact with the printed board. The inside wiring is designed not to get closer to the pyrogenic parts and high voltage parts. Therefore, put these parts in the original positions.

### 5. TAKE CARE TO DEAL WITH THE CATHODE-RAY TUBE

In the condition that an explosion-proof cathode-ray tube is set in this equipment, safety is secured against implosion. However, when removing it or serving from backward, it is dangerous to give a shock. Take enough care to deal with it.

### 6. AVOID AN X-RAY

Safety is secured against an X-ray by considering about the cathode-ray tube and the high voltage peripheral circuit, etc.

Therefore, when repairing the high voltage peripheral circuit, use the designated parts and make sure not modify the circuit.

Repairing except indicates causes rising of high voltage, and it emits an X-ray from the cathode-ray tube.

### 7. PERFORM A SAFETY CHECK AFTER SERVICING

Confirm that the screws, parts and wiring which were removed in order to service are put in the original positions, or whether there are the portions which are deteriorated around the serviced places serviced or not. Check the insulation between the antenna terminal or external metal and the AC cord plug blades. And be sure the safety of that.

#### (INSULATION CHECK PROCEDURE)

1. Unplug the plug from the AC outlet.
2. Remove the antenna terminal on TV and turn on the TV.
3. Insulation resistance between the cord plug terminals and the external exposure metal **[Note 2]** should be more than 1M ohm by using the 500V insulation resistance meter **[Note 1]**.
4. If the insulation resistance is less than 1M ohm, the inspection repair should be required.

#### **[Note 1]**

If you have not the 500V insulation resistance meter, use a Tester.

#### **[Note 2]**

External exposure metal: Antenna terminal  
Headphone jack

## HOW TO ORDER PARTS

Please include the following informations when you order parts. (Particularly the VERSION LETTER.)

#### 1. MODEL NUMBER and VERSION LETTER

The MODEL NUMBER can be found on the back of each product and the VERSION LETTER can be found at the end of the SERIAL NUMBER.

#### 2. PART NO. and DESCRIPTION

You can find it in your SERVICE MANUAL.

## IMPORTANT

When you exchange IC and Transistor with a heat sink, apply silicon grease on the contact section of the heat sink. Before applying new silicon grease, remove all the old silicon grease. (Old grease may cause damages to the IC and Transistor.)



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## ABOUT LEAD FREE SOLDER (PbF)

### Distinction of PbF PCB:

PCBs (manufactured) using lead free solder will have a PbF printing on the PCB.  
(Please refer to figures.)



### Caution:

- Pb free solder has a higher melting point than standard solder;  
Typically the melting point is 50°F~70°F(30°C~40°C) higher.  
Please use a soldering iron with temperature control and adjust it to 650°F ± 20°F (350°C ± 10°C).  
In case of using high temperature soldering iron, please be careful not to heat too long.
- Pb free solder will tend to splash when heated too high (about 1100°F/ 600°C).
- All products with the printed circuit board with PbF printing must be serviced with lead free solder.  
When soldering or unsoldering, completely remove all of the solder from the pins or solder area,  
and be sure to heat the soldering points with the lead free solder until it melts sufficiently.

### Recommendations

Recommended lead free solder composition is Sn-3.0Ag-0.5Cu.

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## GENERAL SPECIFICATIONS

G-1	TV System	CRT	CRT Size / Visual Size	32 inch / 802.0mmV	
			CRT Type	Flat	
			Magnetic Field	BV/BH	+0.45G/0.18G
		Color System		NTSC	
		Speaker		2 Speaker	
			Position	Front	
			Size	2.0 x 4.7 Inch	
			Impedance	8 ohm	
		Sound Output	MAX	5.0+5.0 W	
			10%(Typical)	- W	
G-2	Tuning System	Broadcasting System		No	
			US System	M	
		Tuner and Receive CH	System	1Tuner	
			Destination	USA(W/ CATV)	
			CH Coverage	2 - 69, 4A, A-5 - A-1, A - I, J - W, W+1 - W+84	
		Intermediate Frequency	Picture(FP)	45.75MHz	
			Sound(FS)	41.25MHz	
			FP-FS	4.50MHz	
		Preset CH		No	
		Stereo/Dual TV Sound		Yes	
Tuner Sound Muting		Yes			
G-3	Power	Power Source	AC	120V AC 60Hz	
			DC		
		Power Consumption		at AC	
			Stand by (at AC)	Per Year	137 W at AC 120 V 60 Hz 3 W at AC 120 V 60 Hz -- kWh/Year
		Protector	Power Fuse	Yes	
	Safety Circuit	Yes			
	IC Protector(Micro Fuse)	No			
G-4	Regulation	Safety	UL		
		Radiation	FCC		
		X-Radiation	DHHS		
G-5	Temperature	Operation	+5oC ~ +40oC		
		Storage	-20oC ~ +60oC		
G-6	Operating Humidity		Less than 80% RH		

# GENERAL SPECIFICATIONS

G-7	On Screen Display	Menu		Yes	
		Menu Type		Icon	
		Picture		Yes	
				Contrast	Yes
				Brightness	Yes
				Color	Yes
				Tint	Yes
				Sharpness	Yes
			Sound		Yes
				Bass	Yes
				Treble	Yes
				Balance	Yes
				BBE On/Off	Yes
				Stable Sound On/Off	Yes
				Surround On/Off	Yes
			Set Up		Yes
				TV/CATV	Yes
				Auto CH Memory	Yes
				Add/ Delete	Yes
			Option		Yes
				Language	Yes
				CH Label	Yes
				Favorite CH	Yes
				V-Chip	Yes
				Lock	Yes
				On/Off Timer	Yes
				Color Stream DVD/DTV	Yes
			Control Level		Yes
				Volume	Yes
				Brightness	Yes
				Contrast	Yes
				Color	Yes
				Tint	Yes
		Sharpness	Yes		
		Tuning	No		
		Bass	Yes		
		Treble	Yes		
		Balance	Yes		
		Back Light	No		
		Stereo,Audio Output,SAP	Yes		
		Video	Yes		
		Color Stream	Yes		
		Channel(TV/Cable)	Yes		
		CH Label	Yes		
		Game Timer	Yes		
		Sleep Timer	Yes		
		Sound Mute	Yes		
		V-chip Rating	Yes		
		16: 9	Yes		
G-8	OSD Language		English French Spanish		
G-9	Clock and Timer	Sleep Timer	Max Time	120 Min	
			Step	<u>  10  </u> Min	
		On/Off Timer	Program(On Timer / Off Timer)	Yes	
		Wake Up Timer		No	
		Timer Back-up (at Power Off Mode)	more than	-- Min Sec	

## GENERAL SPECIFICATIONS

<b>G-10</b>	<b>Remote Control</b>	Unit	RC-GW		
		Glow in Dark Remocon	Yes		
		Format	Toshiba		
		Remocon Format	Toshiba		
		Custom Code	TV:40-BF h		
		Power Source	Voltage(D.C) UM size x pcs	3V UM-4 x 2 pcs	
		Total Keys		50 Keys	
		Keys	Power	Yes	
			1	Yes	
			2	Yes	
			3	Yes	
			4	Yes	
			5	Yes	
			6	Yes	
			7	Yes	
			8	Yes	
			9	Yes	
			0	Yes	
			100	Yes	
			CH Up	Yes	
			CH Down	Yes	
			Volume Up	Yes	
			Volume Down	Yes	
			TV/Caption/Text	Yes	
			CH1/CH2	Yes	
			TV/Video(TV/AV)	Yes	
			CH RTN/CH ENT(Quick View)	Yes	
			Sleep	Yes	
			RE Call(Call)	Yes	
			Reset	Yes	
			Menu/Enter	Yes	
			Mute	Yes	
			Exit	Yes	
			MTS(Audio Select)	Yes	
			Fav.Up	Yes	
			Fav.Down	Yes	
			16: 9	Yes	
			Multi Brand Keys	CH Up(VCR)	Yes
				CH Down(VCR)	Yes
				Pause/Still	Yes
				TV/VCR(VCR)	Yes
				FF	Yes
				Rew	Yes
		Rec		Yes	
		Play		Yes	
		Stop		Yes	
		TV		Yes	
		VCR		Yes	
		Cable		Yes	
		DVD		Yes	
CODE	Yes				
Volume Up(DVD)	Yes				
Volume Down(DVD)	Yes				
DVD CLEAR	Yes				
TOP MENU	Yes				
DVD MENU	Yes				
DISPLAY	Yes				

## GENERAL SPECIFICATIONS

<b>G-11</b>	<b>Features</b>	Auto Degauss	Yes
		Auto Shut Off	Yes
		Canal+	No
		CATV	Yes
		Anti-theft	No
		Rental	No
		Memory(Last CH)	Yes
		Memory(Last Volume)	Yes
		V-Chip	Yes
		Type	USA, Toshiba Type
		BBE	Yes
		Auto Search	No
		CH Allocation	No
		SAP	Yes
		Just Clock Function	No
		CH Label	Yes
		VM Circuit	Yes
		Full OSD	No
		Premiere	No
		Comb Filter	Yes
			3 Lines
		Auto CH Memory	Yes
		Hotel Lock	No
		Closed Caption	Yes
		Stable Sound	Yes
		FBT Leak Test Protect	Yes
		CH Lock	Yes
		Video Lock	Yes
		Game Timer (Max Time:120 Min)	Yes
		Energy Star	No
		Favorite CH	Yes
		Surround	Yes
		16:9 Mode	Yes
<b>G-12</b>	<b>Accessories</b>	Owner's Manual	Language English/Spanish
			W/ Warranty Yes
		Remote Control Unit	Yes
		Rod Antenna	No
			Poles Terminal
		Loop Antenna	No
			Terminal -
		U/V Mixer	No
		DC Car Cord (Center+)	No
		Guarantee Card	No
		Warning Sheet	No
		Circuit Diagram	No
		Antenna Change Plug	No
		Service Station List	No
		Important Safety Instruction	No
		Dew/AHC Caution Sheet	No
		AC Plug Adapter	No
		Quick Set-up Sheet	No
		Battery	Yes
			UM size x pcs UM-4 x 2
			OEM Brand No
		AC Cord	No
		AV Cord (2Pin-1Pin)	No
Registration Card (NDL Card)	Yes		
PTB Sheet	No		
ESP Card	No		
300 ohm to 75 ohm Antenna Adapter	No		



# GENERAL SPECIFICATIONS

<b>G-13</b>	<b>Interface</b>	Switch	Front	Power	Yes
				System Select	No
				Main Power SW	No
				Sub Power	No
				Channel Up	Yes
				Channel Down	Yes
				Volume Up	Yes
				Volume Down	Yes
		Rear	AC/DC	No	
			TV/CATV Selector	No	
			Degauss	No	
			Main Power SW	No	
		Indicator	Power	Yes(RED)	
			Stand-by	No	
			On Timer	No	
		Terminals	Front	Video Input = VIDEO3	RCA
				Audio Input = VIDEO3	RCA x 2
				Other Terminal	Head Phone
			Rear	Video Input(Rear1) = VIDEO1	RCA
				Video Input(Rear2) = VIDEO2	RCA
				Audio Input(Rear1) = VIDEO1	RCA x 2
				Audio Input(Rear2) = VIDEO2	RCA x 2
				Video Output	RCA
				Audio Output	RCA x 2
				Euro Scart	No
				Color Stream	RCA x 3
S Input	Yes				
Diversity	No				
Ext Speaker	No				
DC Jack 12V(Center +)	No				
VHF/UHF Antenna Input	F Type				
AC Outlet	No				
<b>G-14</b>	<b>Set Size</b>			Approx. W x D x H (mm)	
<b>G-15</b>	<b>Weight</b>	Net (Approx.)		<u>62.0 kg (136.7lbs)</u>	
		Gross (Approx.)		<u>70.5 kg (155.4lbs)</u>	
<b>G-16</b>	<b>Carton</b>	Master Carton	Content	No	
			Material	--- Sets	
			Dimensions W x D x H(mm)	-- x -- x --	
			Description of Origin	No	
		Gift Box	Material	Double/Brown	
			Dimensions W x D x H(mm)	<u>917 x 766 x 838</u>	
			Description of Origin	As per Buyer's	
		Drop Test	Design	Yes	
			Height (cm)	Natural Dropping At 1 Corner / 2 Edges / 4 Surfaces	
			Container Stuffing	40 (ORION SPEC:25)	
<b>G-17</b>	<b>Cabinet Material</b>	Cabinet	Cabinet Front	PS 94V0 DECABROM	
			Cabinet Rear	PS 94V0 NON-DECABROM	
		PCB	Non-Halogen Demand	No	
			Eyelet Demand	Yes	
			Environment	Pb-free Soldering	Yes
<b>G-18</b>	<b>Environment</b>	Parts Specification(Phase3 : based on RoHS)		Yes	

## GENERAL SPECIFICATIONS

<b>G-1</b>	<b>TV System</b>	CRT	CRT Size / Visual Size	32 inch / 802.0mmV	
			CRT Type	Flat	
			Magnetic Field	BV/BH	+0.45G/0.18G
		Color System			NTSC
		Speaker			2 Speaker
			Position		Front
			Size		2.0 x 4.7 Inch
			Impedance		8 ohm
		Sound Output	MAX		5.0+5.0 W
			10%(Typical)		- W
<b>G-2</b>	<b>Tuning System</b>	Broadcasting System		No	
		Tuner and Receive CH	System	US System M	
			Destination	1Tuner	
				USA(W/ Cable)	
			CH Coverage	2 - 69, 4A, A-5 - A-1, A - I, J - W, W+1 - W+84	
		Intermediate Frequency	Picture(FP)		45.75MHz
			Sound(FS)		41.25MHz
			FP-FS		4.50MHz
		Preset CH			No
		Stereo/Dual TV Sound			Yes
Tuner Sound Muting			Yes		
<b>G-3</b>	<b>Power</b>	Power Source	AC	120V AC 60Hz	
			DC		
		Power Consumption		at AC	
			Stand by (at AC)		137 W at AC 120 V 60 Hz
			Per Year		3 W at AC 120 V 60 Hz
			-- kWh/Year		
<b>G-4</b>	<b>Regulation</b>	Protector	Power Fuse	Yes	
			Safety Circuit	Yes	
			IC Protector(Micro Fuse)	No	
<b>G-5</b>	<b>Temperature</b>	Safety		CSA	
		Radiation		IC	
		X-Radiation		HWC	
<b>G-6</b>	<b>Operating Humidity</b>	Operation		+5oC ~ +40oC	
		Storage		-20oC ~ +60oC	
				Less than 80% RH	

# GENERAL SPECIFICATIONS

G-7	On Screen Display	Menu	Menu Type	Yes	
			Icon	Yes	
			Picture	Yes	
				Contrast	Yes
				Brightness	Yes
				Color	Yes
				Tint	Yes
				Sharpness	Yes
				Sound	Yes
				Bass	Yes
				Treble	Yes
				Balance	Yes
				BBE On/Off	Yes
				Stable Sound On/Off	Yes
				Surround On/Off	Yes
				Set Up	Yes
				TV/Cable	Yes
				Auto CH Memory	Yes
				Add/ Delete	Yes
				Option	Yes
				Language	Yes
				CH Label	Yes
				Favorite CH	Yes
				V-Chip	No
				Lock	Yes
				On/Off Timer	Yes
				Color Stream DVD/DTV	Yes
				Control Level	Yes
				Volume	Yes
				Brightness	Yes
				Contrast	Yes
				Color	Yes
				Tint	Yes
	Sharpness	Yes			
	Tuning	No			
	Bass	Yes			
	Treble	Yes			
	Balance	Yes			
	Back Light	No			
	Stereo,Audio Output,SAP	Yes			
	Video	Yes			
	Color Stream	Yes			
	Channel(TV/Cable)	Yes			
	CH Label	Yes			
	Game Timer	Yes			
	Sleep Timer	Yes			
	Sound Mute	Yes			
	V-chip Rating	No			
	16: 9	Yes			
G-8	OSD Language		English French Spanish		
G-9	Clock and Timer	Sleep Timer	Max Time	120 Min	
			Step	<u>  10  </u> Min	
		On/Off Timer	Program(On Timer / Off Timer)	Yes	
		Wake Up Timer		No	
	Timer Back-up (at Power Off Mode)	more than	-- Min Sec		

## GENERAL SPECIFICATIONS

<b>G-10</b>	<b>Remote Control</b>	Unit	RC-GW		
		Glow in Dark Remocon	Yes		
		Format	Toshiba		
		Remocon Format	Toshiba		
		Custom Code	TV:40-BF h		
		Power Source	Voltage(D.C) UM size x pcs	3V UM-4 x 2 pcs	
		Total Keys		50 Keys	
		Keys	Power	Yes	
			1	Yes	
			2	Yes	
			3	Yes	
			4	Yes	
			5	Yes	
			6	Yes	
			7	Yes	
			8	Yes	
			9	Yes	
			0	Yes	
			100	Yes	
			CH Up	Yes	
			CH Down	Yes	
			Volume Up	Yes	
			Volume Down	Yes	
			TV/Caption/Text	Yes	
			CH1/CH2	Yes	
			TV/Video(TV/AV)	Yes	
			CH RTN/CH ENT(Quick View)	Yes	
			Sleep	Yes	
			RE Call(Call)	Yes	
			Reset	Yes	
			Menu/Enter	Yes	
			Mute	Yes	
			Exit	Yes	
			MTS(Audio Select)	Yes	
			Fav.Up	Yes	
			Fav.Down	Yes	
			16: 9	Yes	
			Multi Brand Keys	CH Up(VCR)	Yes
				CH Down(VCR)	Yes
				Pause/Still	Yes
				TV/VCR(VCR)	Yes
				FF	Yes
				Rew	Yes
				Rec	Yes
				Play	Yes
				Stop	Yes
				TV	Yes
				VCR	Yes
				Cable	Yes
				DVD	Yes
		CODE		Yes	
		Volume Up(DVD)		Yes	
		Volume Down(DVD)		Yes	
DVD CLEAR	Yes				
TOP MENU	Yes				
DVD MENU	Yes				
DISPLAY	Yes				

## GENERAL SPECIFICATIONS

<b>G-11</b>	<b>Features</b>	Auto Degauss	Yes	
		Auto Shut Off	Yes	
		Canal+	No	
		Cable	Yes	
		Anti-theft	No	
		Rental	No	
		Memory(Last CH)	Yes	
		Memory(Last Volume)	Yes	
		V-Chip	No	
		Type	---	
		BBE	Yes	
		Auto Search	No	
		CH Allocation	No	
		SAP	Yes	
		Just Clock Function	No	
		CH Label	Yes	
		VM Circuit	Yes	
		Full OSD	No	
		Premiere	No	
		Comb Filter	Yes	
			3 Lines	
		Auto CH Memory	Yes	
		Hotel Lock	No	
		Closed Caption	Yes	
		Stable Sound	Yes	
		FBT Leak Test Protect	Yes	
		CH Lock	Yes	
		Video Lock	Yes	
		Game Timer (Max Time:120 Min)	Yes	
		Energy Star	No	
		Favorite CH	Yes	
		Surround	Yes	
16:9 Mode	Yes			
<b>G-12</b>	<b>Accessories</b>	Owner's Manual	Language W/ Warranty	English/French Yes
		Remote Control Unit		Yes
		Rod Antenna	Poles Terminal	No
		Loop Antenna	Terminal	No
		U/V Mixer		No
		DC Car Cord (Center+)		No
		Guarantee Card		No
		Warning Sheet		No
		Circuit Diagram		No
		Antenna Change Plug		No
		Service Station List		No
		Important Safety Instruction		No
		Dew/AHC Caution Sheet		No
		AC Plug Adapter		No
		Quick Set-up Sheet		No
		Battery	UM size x pcs OEM Brand	Yes UM-4 x 2 No
		AC Cord		No
		AV Cord (2Pin-1Pin)		No
		Registration Card (NDL Card)		No
		PTB Sheet		No
		ESP Card		No
		300 ohm to 75 ohm Antenna Adapter		No

# GENERAL SPECIFICATIONS

<b>G-13</b>	<b>Interface</b>	Switch	Front	Power	Yes	
				System Select	No	
				Main Power SW	No	
				Sub Power	No	
				Channel Up	Yes	
				Channel Down	Yes	
				Volume Up	Yes	
				Volume Down	Yes	
				Rear	AC/DC	No
		TV/Cable Selector	No			
		Degauss	No			
		Main Power SW	No			
		Indicator	Power	Yes(RED)		
			Stand-by	No		
			On Timer	No		
		Terminals	Front	Video Input = VIDEO3	RCA	
				Audio Input = VIDEO3	RCA x 2	
				Other Terminal	Head Phone	
			Rear	Video Input(Rear1) = VIDEO1	RCA	
				Video Input(Rear2) = VIDEO2	RCA	
				Audio Input(Rear1) = VIDEO1	RCA x 2	
				Audio Input(Rear2) = VIDEO2	RCA x 2	
				Video Output	RCA	
				Audio Output	RCA x 2	
				Euro Scart	No	
				Color Stream	RCA x 3	
				S Input	Yes	
Diversity	No					
Ext Speaker	No					
DC Jack 12V(Center +)	No					
VHF/UHF Antenna Input	F Type					
AC Outlet	No					
<b>G-14</b>	<b>Set Size</b>			Approx. W x D x H (mm)		<u>774</u> x <u>572</u> x <u>687</u>
<b>G-15</b>	<b>Weight</b>			Net (Approx.)		<u>62.0</u> kg ( <u>136.7</u> lbs)
				Gross (Approx.)		<u>70.5</u> kg ( <u>155.4</u> lbs)
<b>G-16</b>	<b>Carton</b>	Master Carton		No		
			Content	--- Sets		
			Material	-- /--		
			Dimensions W x D x H(mm)	-- x -- x --		
		Description of Origin	No			
		Gift Box	Material	Double/Brown		
			Dimensions W x D x H(mm)	<u>917</u> x <u>766</u> x <u>838</u>		
			Design	As per Buyer's		
		Description of Origin	Yes			
		Drop Test	Natural Dropping At 1 Corner / 2 Edges / 4 Surfaces			
			Height (cm)	40 (ORION SPEC:25)		
Container Stuffing	<u>72</u> Sets/40' container					
<b>G-17</b>	<b>Cabinet Material</b>	Cabinet	Cabinet Front	PS 94V0 DECABROM		
			Cabinet Rear	PS 94V0 NON-DECABROM		
		PCB	Non-Halogen Demand	No		
			Eyelet Demand	Yes		
<b>G-18</b>	<b>Environment</b>	Environmental standard requirement (by buyer)		Green procurement of TOSHIBA		
		Pb-free		Phase3(Phase3A)		

# DISASSEMBLY INSTRUCTIONS

## 1. REMOVAL OF ANODE CAP

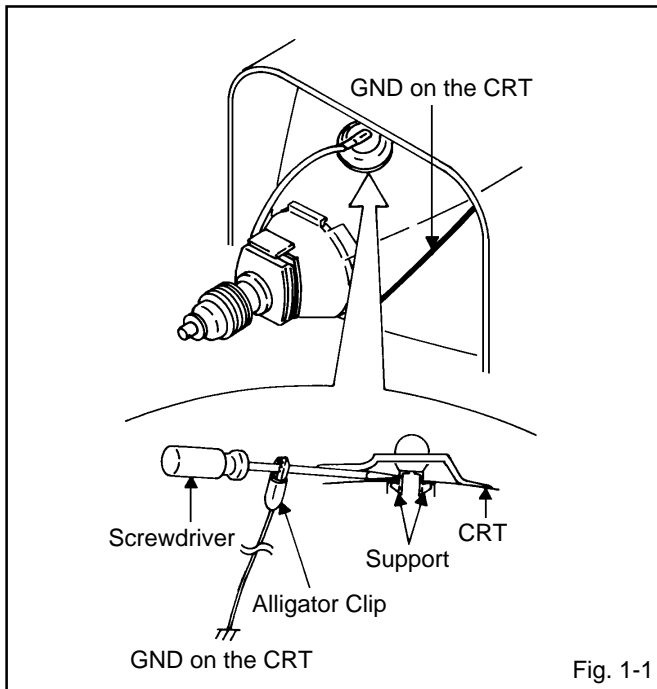
Read the following **NOTED** items before starting work.

- \* After turning the power off there might still be a potential voltage that is very dangerous. When removing the Anode Cap, make sure to discharge the Anode Cap's potential voltage.
- \* Do not use pliers to loosen or tighten the Anode Cap terminal, this may cause the spring to be damaged.

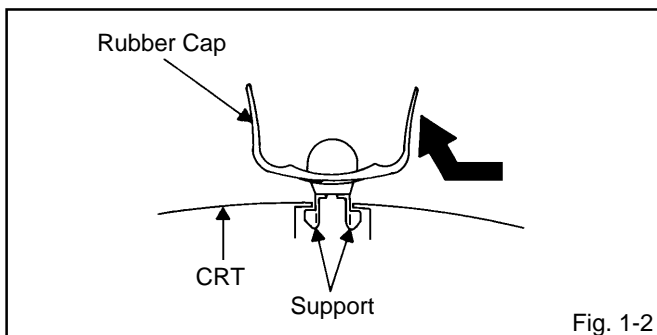
### REMOVAL

1. Follow the steps as follows to discharge the Anode Cap. (Refer to Fig. 1-1.)

Connect one end of an Alligator Clip to the metal part of a flat-blade screwdriver and the other end to ground. While holding the plastic part of the insulated Screwdriver, touch the support of the Anode with the tip of the Screwdriver. A cracking noise will be heard as the voltage is discharged.



2. Flip up the sides of the Rubber Cap in the direction of the arrow and remove one side of the support. (Refer to Fig. 1-2.)



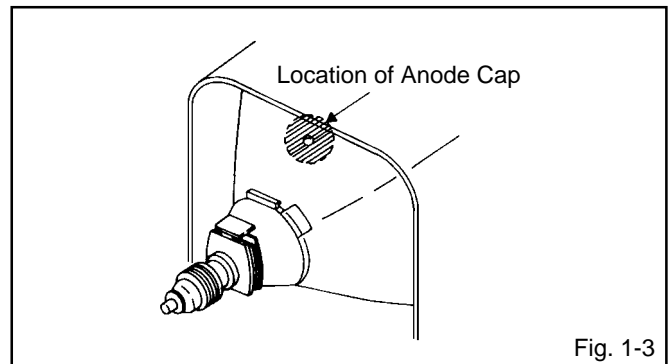
3. After one side is removed, pull in the opposite direction to remove the other.

### NOTE

Take care not to damage the Rubber Cap.

### INSTALLATION

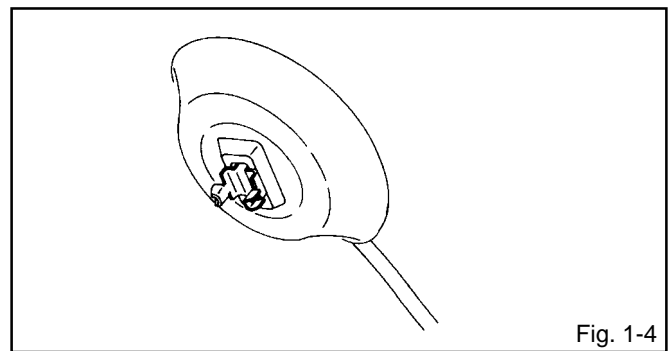
1. Clean the spot where the cap was located with a small amount of alcohol. (Refer to Fig. 1-3.)



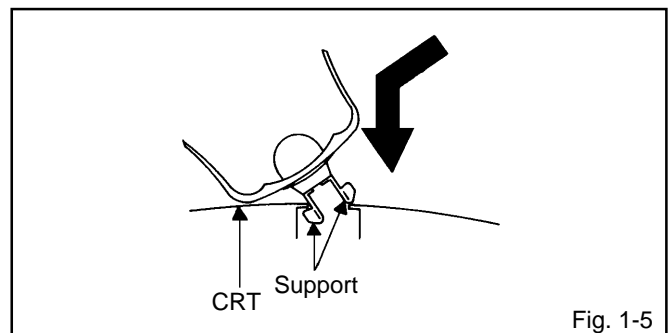
### NOTE

Confirm that there is no dirt, dust, etc. at the spot where the cap was located.

2. Arrange the wire of the Anode Cap and make sure the wire is not twisted.
3. Turn over the Rubber Cap. (Refer to Fig. 1-4.)



4. Insert one end of the Anode Support into the anode button, then the other as shown in Fig. 1-5.



5. Confirm that the Support is securely connected.
6. Put on the Rubber Cap without moving any parts.

# DISASSEMBLY INSTRUCTIONS

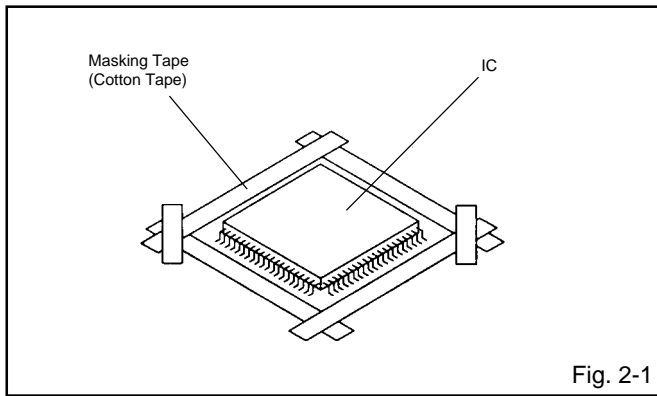
## 2. REMOVAL AND INSTALLATION OF FLAT PACKAGE IC

### REMOVAL

1. Put Masking Tape (cotton tape) around the Flat Package IC to protect other parts from any damage. (Refer to Fig. 2-1.)

#### NOTE

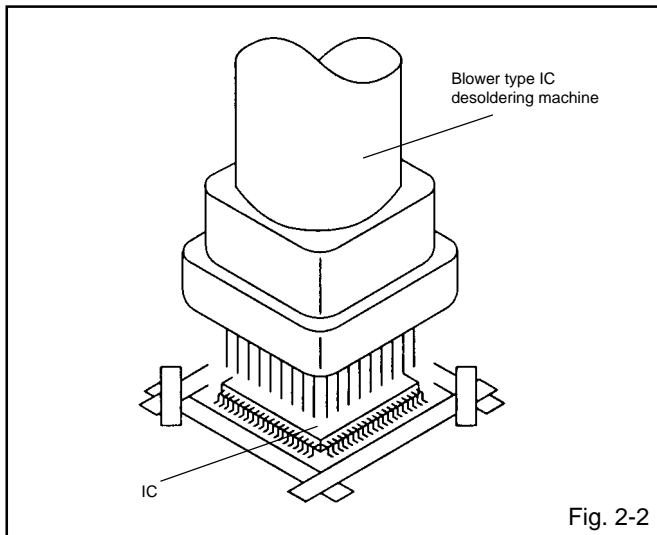
Masking is carried out on all the parts located within 10 mm distance from IC leads.



2. Heat the IC leads using a blower type IC desoldering machine. (Refer to Fig. 2-2.)

#### NOTE

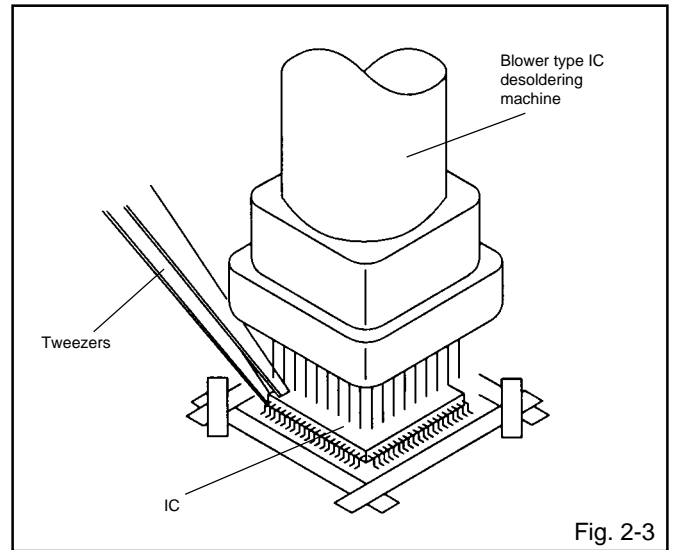
Do not rotate or move the IC back and forth, until IC can move back and forth easily after desoldering the leads completely.



3. When IC starts moving back and forth easily after desoldering completely, pickup the corner of the IC using a tweezers and remove the IC by moving with the IC desoldering machine. (Refer to Fig. 2-3.)

#### NOTE

Some ICs on the PCB are affixed with glue, so be careful not to break or damage the foil of each IC leads or solder lands under the IC when removing it.

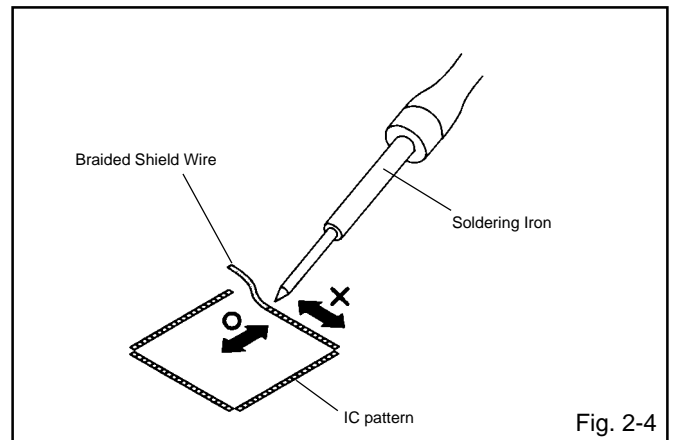


4. Peel off the Masking Tape.

5. Absorb the solder left on the pattern using the Braided Shield Wire. (Refer to Fig. 2-4.)

#### NOTE

Do not move the Braided Shield Wire in the vertical direction towards the IC pattern.

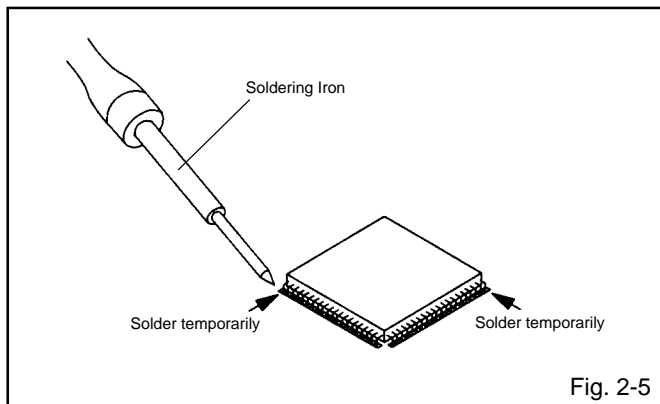




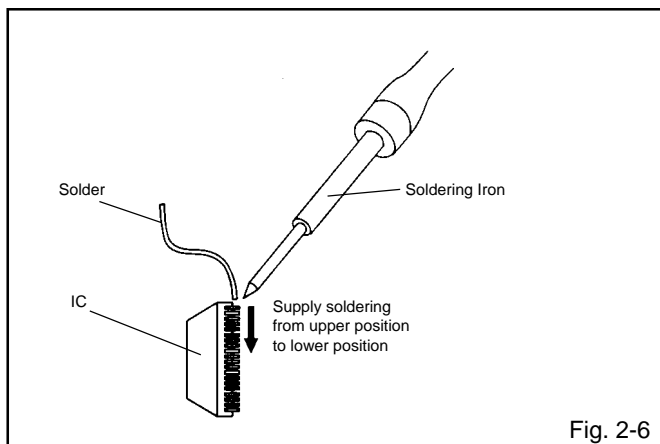
# DISASSEMBLY INSTRUCTIONS

## INSTALLATION

1. Take care of the polarity of new IC and then install the new IC fitting on the printed circuit pattern. Then solder each lead on the diagonal positions of IC temporarily. (Refer to Fig. 2-5.)



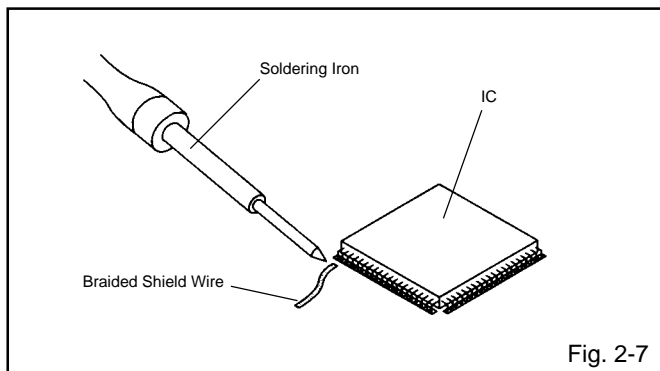
2. Supply the solder from the upper position of IC leads sliding to the lower position of the IC leads. (Refer to Fig. 2-6.)



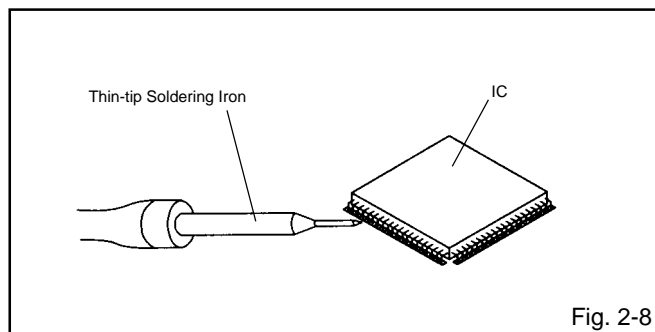
3. Absorb the solder left on the lead using the Braided Shield Wire. (Refer to Fig. 2-7.)

### NOTE

Do not absorb the solder to excess.



4. When bridge-soldering between terminals and/or the soldering amount are not enough, resolder using a Thin-tip Soldering Iron. (Refer to Fig. 2-8.)



5. Finally, confirm the soldering status on four sides of the IC using a magnifying glass. Confirm that no abnormality is found on the soldering position and installation position of the parts around the IC. If some abnormality is found, correct by resoldering.

### NOTE

When the IC leads are bent during soldering and/or repairing, do not repair the bending of leads. If the bending of leads are repaired, the pattern may be damaged. So, always be sure to replace the IC in this case.

## SERVICE MODE LIST

This unit provided with the following SERVICE MODES so you can repair, examine and adjust easily. To enter the Service Mode, press both set key and remote control key for more than 1 second.

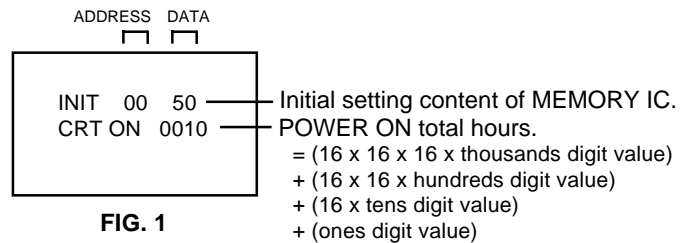
Set Key	Remocon Key	Operations
VOL. (-) MIN	0	Releasing of V-CHIP PASSWORD.
VOL. (-) MIN	1	Initialization of factory data. NOTE: Do not use this for normal servicing. If you set factory initialization, the memories are reset such as the channel setting, and the POWER ON total hours.
VOL. (-) MIN	6	POWER ON total hours is displayed on the screen. Refer to the "CONFIRMATION OF HOURS USED".  Can be checked of the INITIAL DATA of MEMORY IC. Refer to the "WHEN REPLACING EEPROM (MEMORY) IC".
VOL. (-) MIN	8	Writing of EEPROM initial data. NOTE: Do not use this for the normal servicing.
VOL. (-) MIN	9	Display of the Adjustment MENU on the screen. Refer to the "ELECTRICAL ADJUSTMENT" (On-Screen Display Adjustment).

### CONFIRMATION OF HOURS USED

POWER ON total hours can be checked on the screen. Total hours are displayed in 16 system of notation.

**NOTE: If you set factory initialization, the total hours is reset to "0".**

1. Set the VOLUME to minimum.
2. Press both VOL. DOWN button on the set and Channel button (6) on the remote control for more than 1 second.
3. After the confirmation of using hours, turn off the power.



### WHEN REPLACING EEPROM (MEMORY) IC

If a service repair is undertaken where it has been required to change the MEMORY IC, the following steps should be taken to ensure correct data settings while making reference to TABLE 1.

INI	+0	+1	+2	+3	+4	+5	+6	+7	+8	+9	+A	+B	+C	+D	+E	+F
00	50	E8	0B	44	5F	B3	24	B7	*1	AC	BB	04	80	80	80	59
10	70	00	00	00	03	00	06	60	3F	0F	0D	E2	A8	21	49	00

\*1

INI	USA	CANADA
08	3F	3E

**Table 1**

1. Enter DATA SET mode by setting VOLUME to minimum.
2. Press both VOL. DOWN button on the set and Channel button (6) on the remote control for more than 1 second. ADDRESS and DATA should appear as FIG 1.
3. ADDRESS is now selected and should "blink". Using the VOL. UP/DOWN button on the remote, step through the ADDRESS until required ADDRESS to be changed is reached.
4. Press ENTER to select DATA. When DATA is selected, it will "blink".
5. Again, step through the DATA using VOL. UP/DOWN button until required DATA value has been selected.
6. Pressing ENTER will take you back to ADDRESS for further selection if necessary.
7. Repeat steps 3 to 6 until all data has been checked.
8. When satisfied correct DATA has been entered, turn POWER off (return to STANDBY MODE) to finish DATA input.  
**After the data input, set to the initializing of shipping.**
9. Turn POWER on.
10. Press both VOL. DOWN button on the set and Channel button (1) on the remote control for more than 1 second.
11. After the finishing of the initializing of shipping, the unit will turn off automatically.

The unit will now have the correct DATA for the new MEMORY IC.

# ELECTRICAL ADJUSTMENTS

## 1. ADJUSTMENT PROCEDURE

Read and perform these adjustments when repairing the circuits or replacing electrical parts or PCB assemblies.

### CAUTION

- Use an isolation transformer when performing any service on this chassis.
- Before removing the anode cap, discharge electricity because it contains high voltage.
- When removing a PCB or related component, after unfastening or changing a wire, be sure to put the wire back in its original position.
- When you exchange IC and Transistor with a heat sink, apply silicon grease on the contact section of the heat sink. Before applying new silicon grease, remove all the old silicon grease. (Old grease may cause damages to the IC and Transistor.)

Prepare the following measurement tools for electrical adjustments.

1. Oscilloscope
2. Digital Voltmeter
3. Multi-sound Generator
4. Pattern Generator

### On-Screen Display Adjustment

1. In the condition of NO indication on the screen. Press the VOL. DOWN button on the set and the Channel button (9) on the remote control for more than 1 second to appear the adjustment mode on the screen as shown in Fig. 1-1.

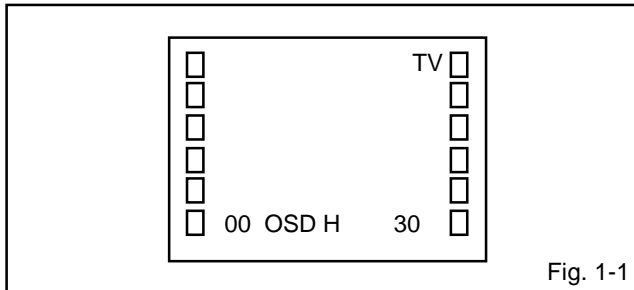


Fig. 1-1

2. Use the Channel UP/DOWN button or Channel button (0-9) on the remote control to select the options shown in Fig. 1-2.
3. Press the MENU button on the remote control to end the adjustments.

NO.	FUNCTION	NO.	FUNCTION
00	OSD H	18	CONTRAST MAX
01	CUT OFF	19	CONTRAST CENT
02	H. VCO	20	CONTRAST MIN
03	H. PHASE	21	COLOR MAX
04	AFC GAIN	22	COLOR CENTER
05	V. SHIFT	23	COLOR MIN
06	H. SIZE	24	TINT
07	V. SIZE	25	SHARPNESS
08	V. LINERITY	26	CB DL
09	VS CORRECTION	27	CR DL
10	R DRIVE	28	CB PED
11	B DRIVE	29	CR PED
12	R CUT OFF	30	PARABOLA
13	G CUT OFF	31	CORNER
14	B CUT OFF	32	TRAPWZIUM
15	BRIGHT MAX	33	LEVEL
16	BRIGHT CENT	34	SEPARATION1
17	BRIGHT MIN	35	SEPARATION2

Fig. 1-2

## 2. BASIC ADJUSTMENTS

### 2-1: CONSTANT VOLTAGE

1. Place the set in AV MODE without signal.
2. Connect the digital voltmeter to the TP003.
3. Adjust the VR502 until the digital voltmeter is  $135 \pm 0.5V$ .

### 2-2: CUT OFF

1. Place the set in Aging Test for more than 15 minutes.
2. Place the set in AV MODE without signal.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of Fig. 1-1 and press the channel button (01) on the remote control to select "CUT OFF".
5. Adjust the Screen Volume until a dim raster is obtained.

### 2-3: WHITE BALANCE, WHITE BALANCE CS

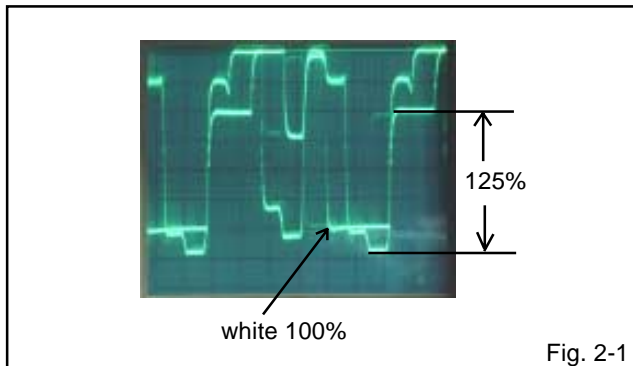
NOTE: Adjust after performing CUT OFF adjustment.

1. Place the set in Aging Test for more than 15 minutes.
2. Receive the gray scale pattern from the Pattern Generator with Burst on.
3. Using the remote control, set the brightness and contrast to normal position.
4. Activate the adjustment mode display of Fig. 1-1 and press the channel button (12) on the remote control to select "R. BIAS".
5. Press the CH. UP/DOWN button on the remote control to select the "R. BIAS", "G. BIAS", "B. BIAS", "B. DRIVE" or "R. DRIVE".
6. Adjust the VOL. UP/DOWN button on the remote control to whiten the R. BIAS, G. BIAS, B. BIAS, B. DRIVE and R. DRIVE at each step tone sections equally.
7. Perform the above adjustments 5 and 6 until the white color is achieved.
8. Press the TV/VIDEO button on the remote control to set to the CS mode.
9. Receive the gray scale pattern from the Pattern Generator with Burst On.
10. If the picture is too much green. Activate the adjustment mode display of Fig. 1-1 and press the channel button (28) on the remote control to select "CB PED".
11. Adjust the VOL. UP/DOWN button on the remote control to select the step up.
12. If the picture is too much red. Activate the adjustment mode display of Fig. 1-1 and press the channel button (29) on the remote control to select "CR PED".
13. Adjust the VOL. UP/DOWN button on the remote control to select the step down.

# ELECTRICAL ADJUSTMENTS

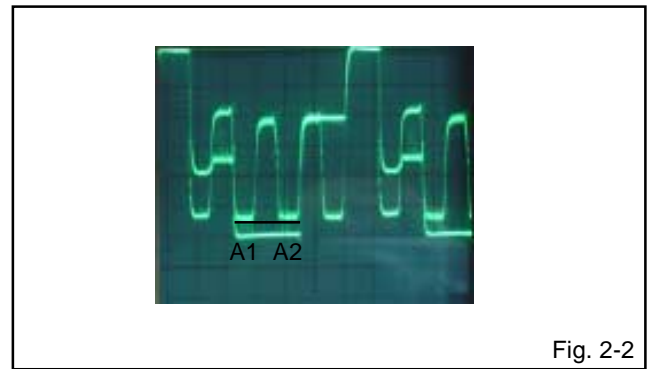
## 2-4: COLOR CENT

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness, contrast, color and tint to normal position.
3. Connect the oscilloscope to **TP804**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**22**) on the remote control to select "COLOR CENT".
5. Adjust the VOLTS RANGE VARIABLE knob of the oscilloscope until the range between white 100% and 0% is set to 4 scales on the screen of the oscilloscope.
6. Press the VOL. UP/DOWN button on the remote control until the red color level is adjusted to  $125 \pm 5\%$  of the white level. (**Refer to Fig. 2-1**)
7. Receive the video color bar pattern. (Audio Video Input)
8. Set to the AV mode. Then perform the above adjustments 2~6.
9. Press the TV/VIDEO button on the remote control to set to the CS mode. Then perform the above adjustments 2~4.
10. Press the VOL. UP/DOWN button on the remote control until the color step No. becomes "65".



## 2-5: TINT

1. Receive the color bar pattern. (RF Input)
2. Using the remote control, set the brightness, contrast, color and tint to normal position.
3. Connect the oscilloscope to **TP806**.
4. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**24**) on the remote control to select "TINT".
5. Press the VOL. UP/DOWN button on the remote control until the section "A" becomes as straight line. (**Refer to Fig. 2-2**)
6. Receive the video color bar pattern. (Audio Video Input)
7. Set to the AV mode. Then perform the above adjustments 2~5.
8. Press the TV/VIDEO button on the remote control to set to the CS mode. Then perform the above adjustments 2~4.
9. Press the VOL. UP/DOWN button on the remote control until the tint step No. becomes "51".



## 2-6: FOCUS

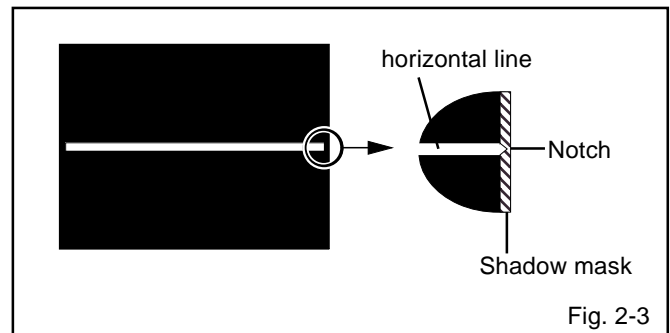
1. Receive the monoscope pattern.
2. Turn the Focus Volume fully counterclockwise once.
3. Adjust the **Focus Volume** until picture is distinct.

## 2-7: VERTICAL SIZE

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**07**) on the remote control to select "V. SIZE".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes  $9 \pm 3\%$ .

## 2-8: VERTICAL POSITION

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Adjust the **VR401** until the horizontal line becomes fit to the notch of the shadow mask. (**Refer to Fig. 2-3**)



## 2-9: VERTICAL LINEARITY

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness, contrast, to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button (**08**) on the remote control to select "V. LINEARITY".
4. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on upside and downside becomes minimum.

# ELECTRICAL ADJUSTMENTS

## 2-10: HORIZONTAL POSITION

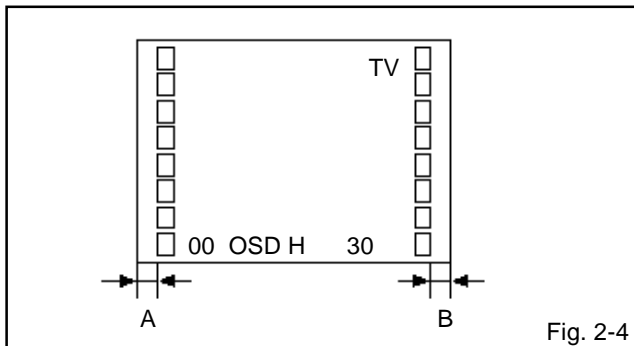
1. Receive the monoscope pattern.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(03)** on the remote control to select "H.PHASE".
3. Press the VOL. UP/DOWN button on the remote control until the SHIFT quantity of the OVER SCAN on right and left becomes minimum.

## 2-11: HORIZONTAL SIZE

1. Receive the monoscope pattern.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(06)** on the remote control to select "H. SIZE".
4. Press the VOL. UP/DOWN button on the remote control adjust the H.SIZE becomes 10 ~ 12%.

## 2-12: OSD POSITION

1. Activate the adjustment mode display of **Fig. 1-1**.
2. Press the VOL. UP/DOWN button on the remote control until the difference of A and B becomes minimum. (**Refer to Fig. 2-4**)



## 2-13: BRIGHT CENT

1. Receive the monoscope pattern. (RF Input)
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(16)** on the remote control to select "BRI CENT".
4. Press the VOL. UP/DOWN button on the remote control until the screen begin to shine.
5. Receive the monoscope pattern. (Audio Video Input)
6. Press the TV/VIDEO button on the remote control to set to the AV mode. Then perform the above adjustments 2~4.
7. Press the TV/VIDEO button on the remote control to set to the CS mode.
8. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(16)** on the remote control to select "BRI CENT".
9. Press the VOL. UP/DOWN button on the remote control until the brightness step No. becomes "90".

## 2-14: CONTRAST MAX

1. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(18)** on the remote control to select "CONT. MAX".
2. Press the VOL. UP/DOWN button on the remote control until the contrast step No. becomes "100".
3. Receive a broadcast and check if the picture is normal.
4. Press the TV/VIDEO button on the remote control to set to the AV mode. Then perform the above adjustments 1~3.
5. Press the TV/VIDEO button on the remote control to set to the CS mode. Then perform the above adjustments 1~3.

## 2-15: PARABOLA/CORNER

1. Receive the cross hatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(30)** on the remote control to select "PARABOLA".
4. Press the VOL. UP/DOWN button on the remote control until the right and left vertical lines are straight.
5. In the case the right and left vertical lines are not straight.
6. Please Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(31)** on the remote control to select "CORNER".
7. Press the VOL. UP/DOWN button on the remote control until the right and left vertical lines are straight.

## 2-16: TRAPEZIUM

1. Receive the cross hatch signal from the Pattern Generator.
2. Using the remote control, set the brightness and contrast to normal position.
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(32)** on the remote control to select "TRAPEZIUM".
4. Press the VOL. UP/DOWN button on the remote control until the both vertical lines of the screen become parallel.

## 2-17: SEPARATION 1, 2

1. Receive the stereo signal (L=2KHz, R=400Hz).
2. Connect the AC voltmeter to **Audio Out Jack** through stereo filter (L=400Hz, R=2KHz).
3. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(34)** on the remote control to select "SEP1".
4. Press the VOL. UP/DOWN button on the remote control until the output of L-CH and R-CH become minimum.
5. Press the CH UP button once the set to "SEP2 mode".
6. Press the VOL. UP/DOWN button on the remote control until the output of L-CH and R-CH become minimum.
7. Press the CH DOWN button once the set to "SEP1" mode.
8. Repeat step 4 to step 7 several times.  
The output difference of the between with Filter and without Filter should be more than 25db for both L and R.

# ELECTRICAL ADJUSTMENTS

## 2-18: LEVEL

1. Connect the AC voltmeter to **pin 6 of CP101**.
2. Activate the adjustment mode display of **Fig. 1-1** and press the channel button **(33)** on the remote control to select "LEVEL".
3. Press the VOL. UP/DOWN button on the remote control until the AC voltmeter is  $85 \pm 2\text{mV}$ .

## 2-19: Confirmation of Fixed Value (Step No.)

Please check if the fixed values of the each adjustment items are set correctly referring below.

NO.	FUNCTION	RF	AV	CS
02	H.VCO	03	03	03
04	AFC GAIN	06	06	06
05	V.SHIFT	03	03	03
09	VS CORRECTION	36	36	36
15	BRI.MAX	160	160	160
17	BRI.MIN	30	30	30
19	CONT.CENT	30	30	30
20	CONT.MIN	05	05	05
21	COL.MAX	90	90	90
23	COL.MIN	00	00	00
25	SHARPNESS	35	35	35
26	CB DL	03	03	03
27	CR DL	03	03	03

# ELECTRICAL ADJUSTMENTS

## 3. PURITY AND CONVERGENCE ADJUSTMENTS

### NOTE

1. Turn the unit on and let it warm up for at least 30 minutes before performing the following adjustments.
2. Place the CRT surface facing east or west to reduce the terrestrial magnetism.
3. Turn ON the unit and demagnetize with a Degauss Coil.

### 3-1: STATIC CONVERGENCE (ROUGH ADJUSTMENT)

1. Tighten the screw for the magnet. Refer to the adjusted CRT for the position. **(Refer to Fig. 3-1)**  
If the deflection yoke and magnet are in one body, untighten the screw for the body.
2. Receive the green raster pattern from the color bar generator.
3. Slide the deflection yoke until it touches the funnel side of the CRT.
4. Adjust center of screen to green, with red and blue on the sides, using the pair of purity magnets.
5. Switch the color bar generator from the green raster pattern to the crosshatch pattern.
6. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
7. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.
8. Adjust the crosshatch pattern to change to white by repeating steps 6 and 7.

### 3-2: PURITY

#### NOTE

Adjust after performing adjustments in section 3-1.

1. Receive the green raster pattern from color bar generator.
2. Adjust the pair of purity magnets to center the color on the screen.  
Adjust the pair of purity magnets so the color at the ends are equally wide.
3. Move the deflection yoke backward (to neck side) slowly, and stop it at the position when the whole screen is green.
4. Confirm red and blue color.
5. Adjust the slant of the deflection yoke while watching the screen, then tighten the fixing screw.

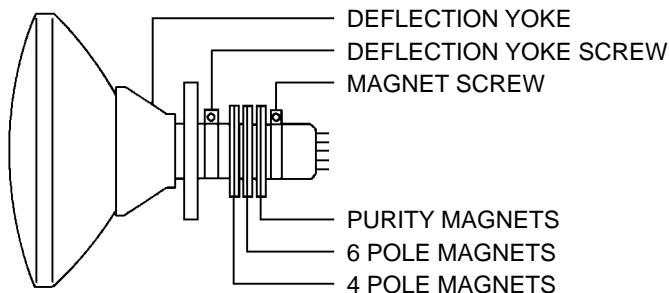


Fig. 3-1

### 3-3: STATIC CONVERGENCE

#### NOTE

Adjust after performing adjustments in section 3-2.

1. Receive the crosshatch pattern from the color bar generator.
2. Combine red and blue of the 3 color crosshatch pattern on the center of the screen by adjusting the pair of 4 pole magnets.
3. Combine red/blue (magenta) and green by adjusting the pair of 6 pole magnets.

### 3-4: DYNAMIC CONVERGENCE

#### NOTE

Adjust after performing adjustments in section 3-3.

1. Adjust the differences around the screen by moving the deflection yoke upward/downward and right/left. **(Refer to Fig. 3-2-a)**
2. Insert three wedges between the deflection yoke and CRT funnel to fix the deflection yoke. **(Refer to Fig. 3-2-b)**

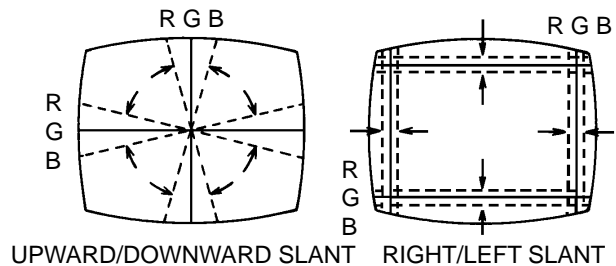
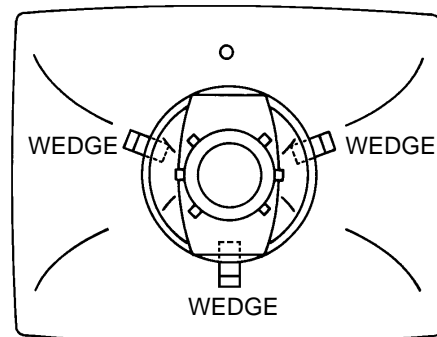


Fig. 3-2-a

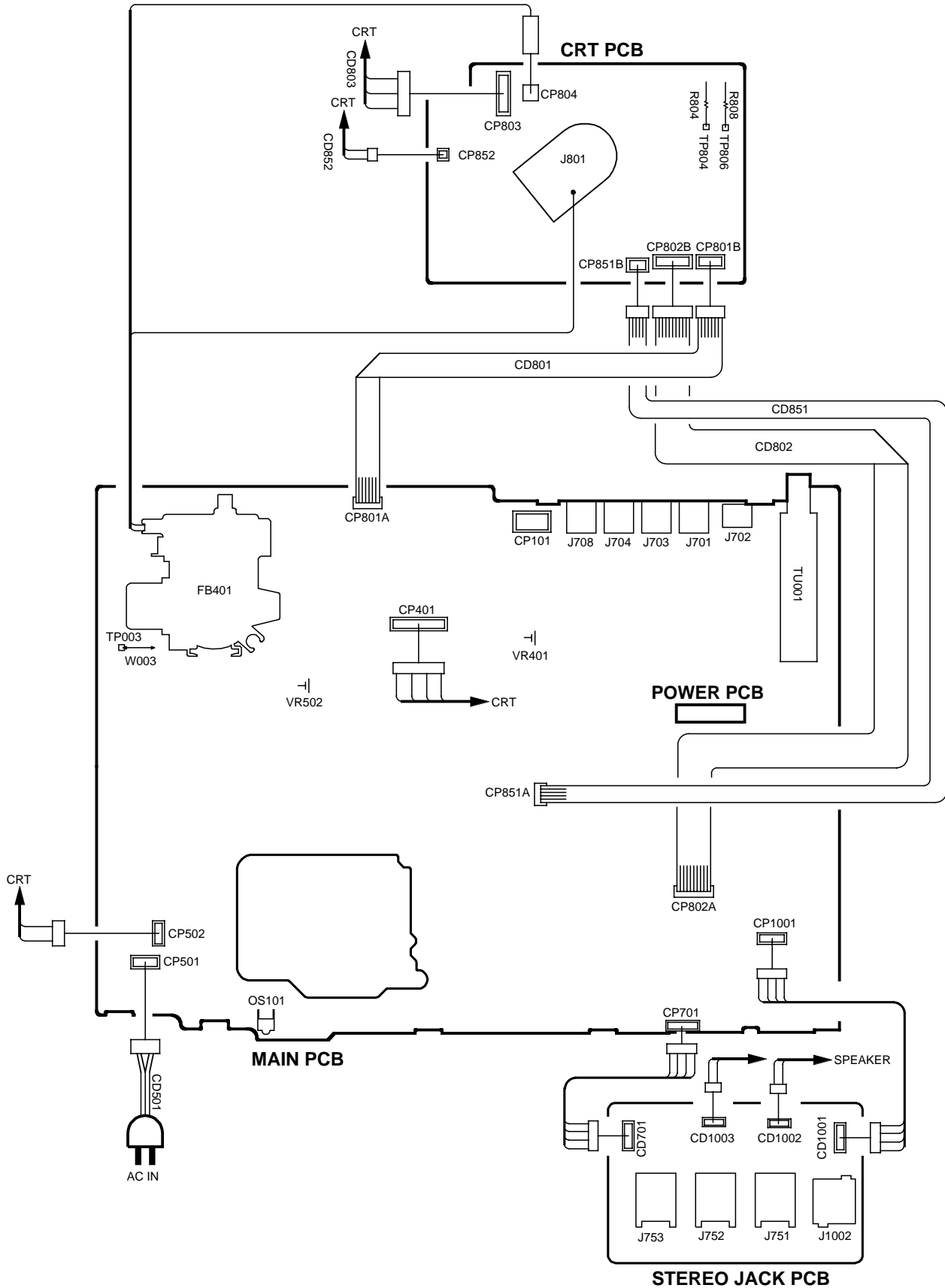


WEDGE POSITION

Fig. 3-2-b

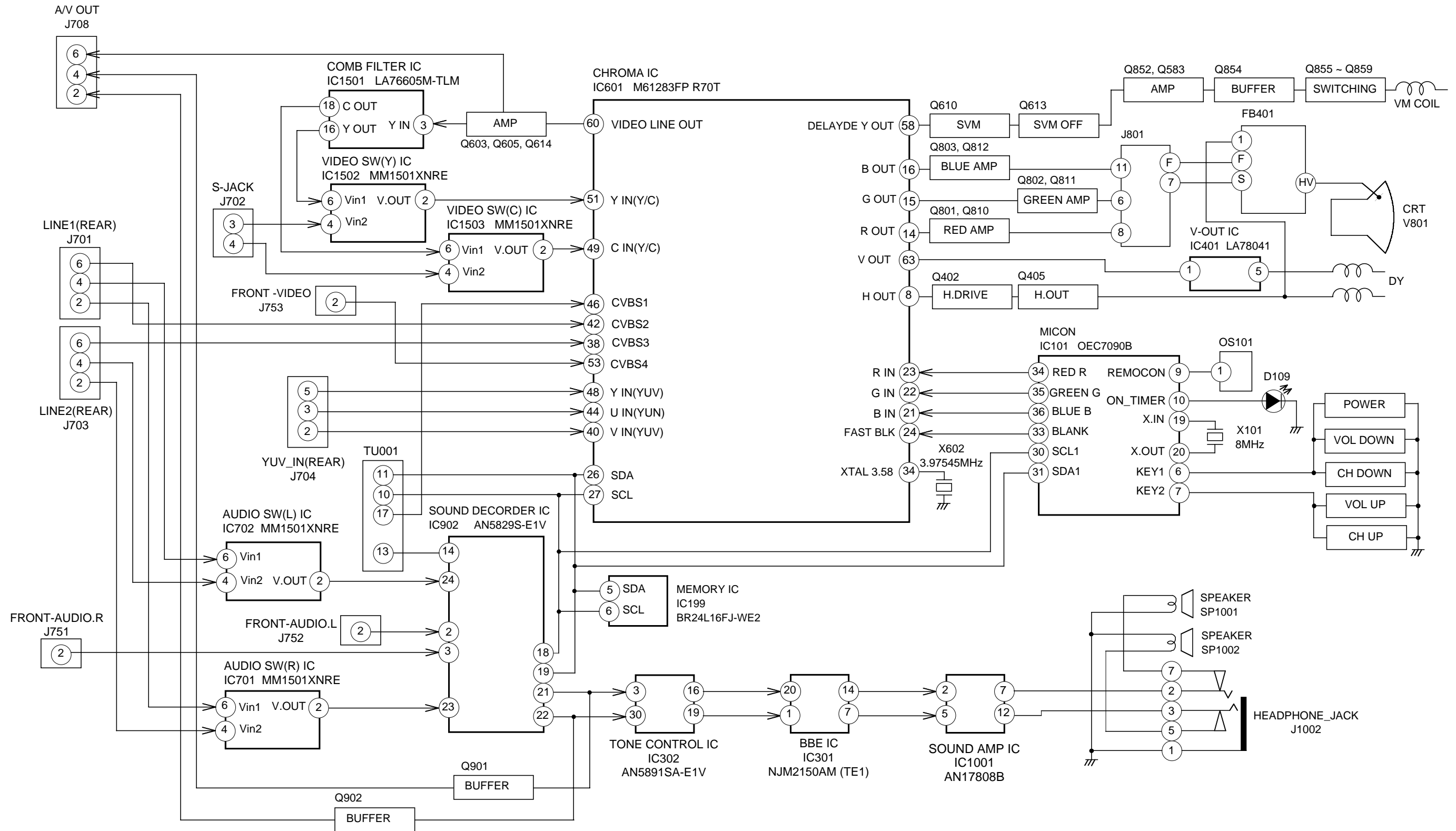
# ELECTRICAL ADJUSTMENTS

## 4. ELECTRICAL ADJUSTMENT PARTS LOCATION GUIDE (WIRING CONNECTION)

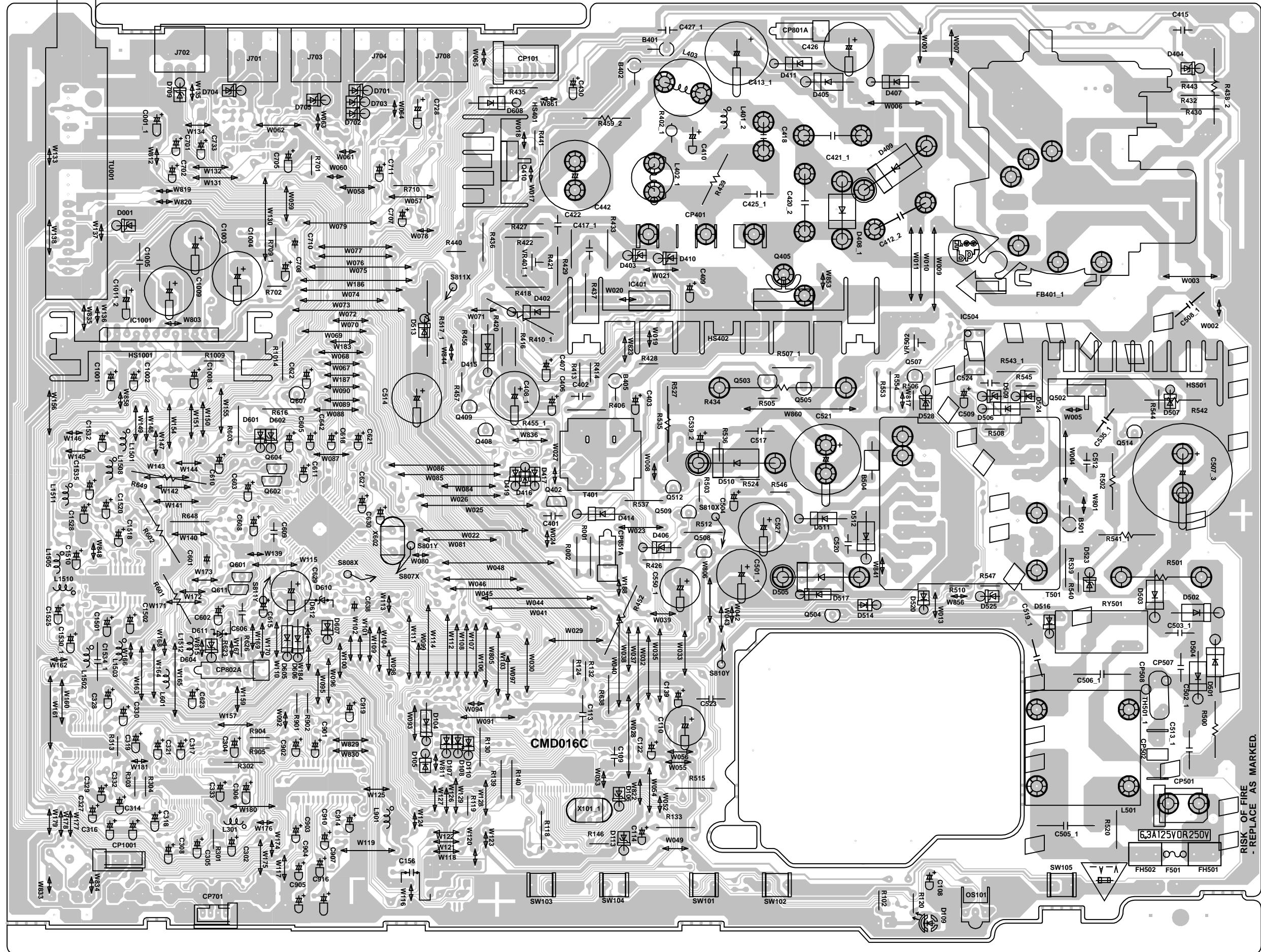




# BLOCK DIAGRAM

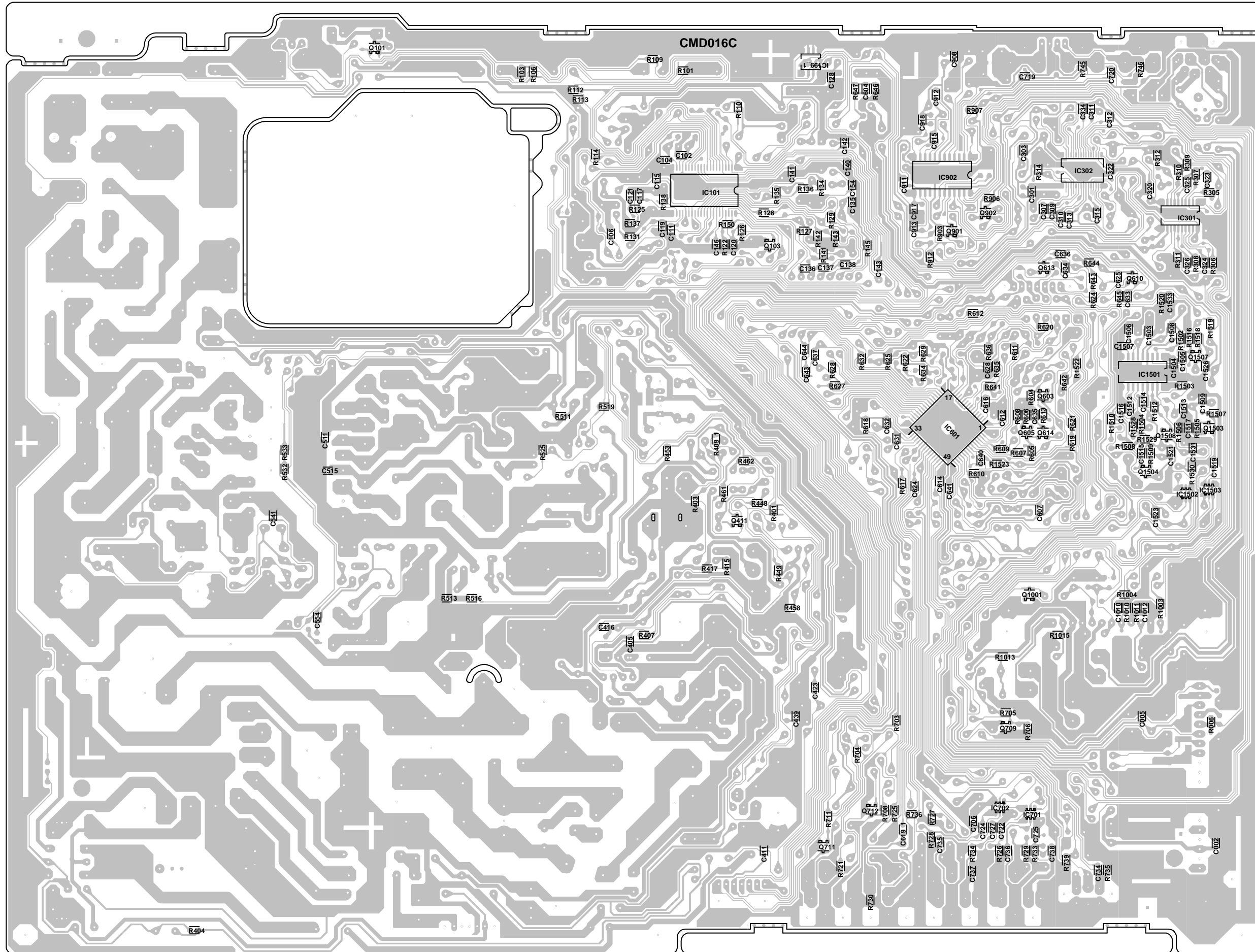


PRINTED CIRCUIT BOARDS  
MAIN (INSERTED PARTS)  
SOLDER SIDE



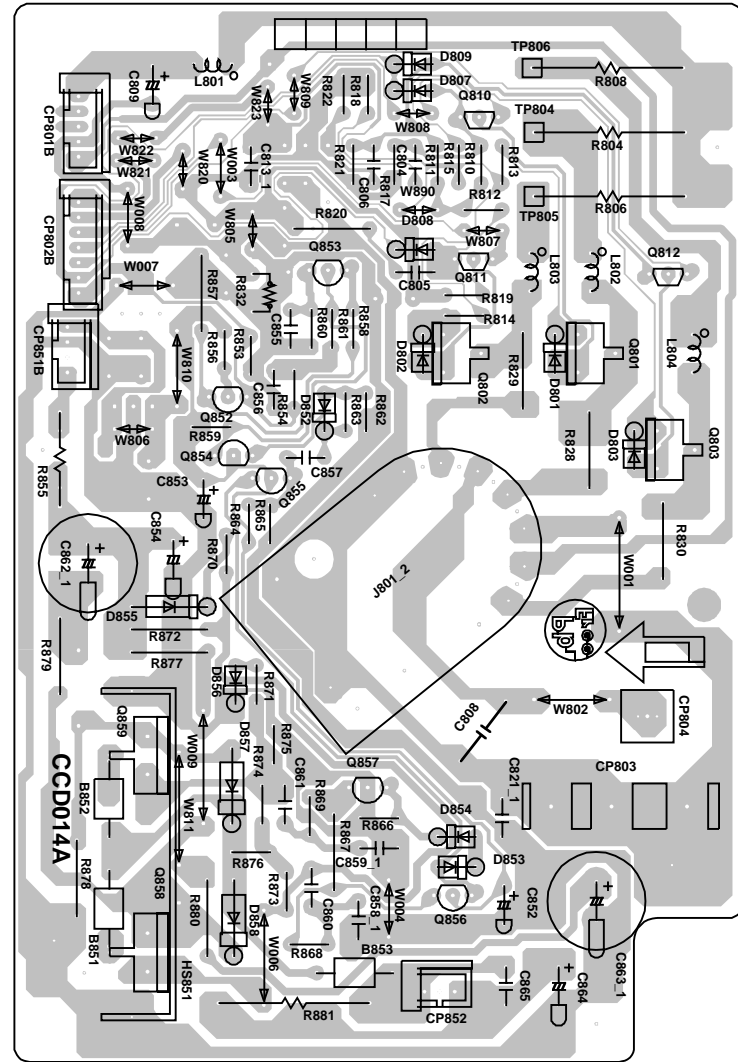
RISK OF FIRE  
- REPLACE AS MARKED.

PRINTED CIRCUIT BOARDS  
MAIN (CHIP MOUNTED PARTS)  
SOLDER SIDE

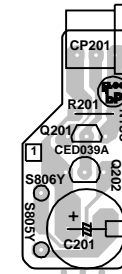


PRINTED CIRCUIT BOARDS

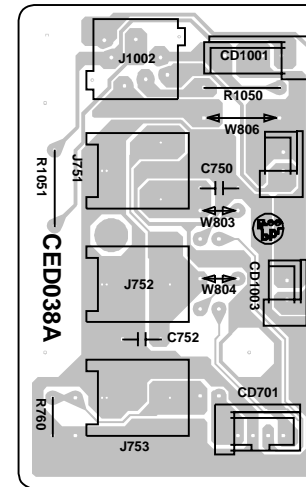
CRT/VM COIL  
SOLDER SIDE



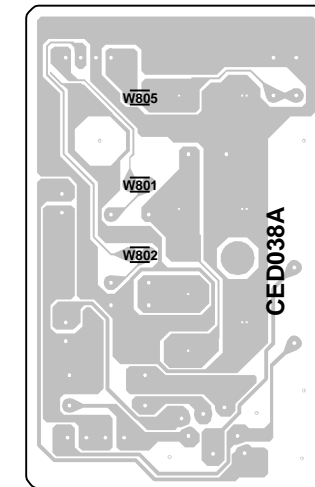
POWER  
SOLDER SIDE



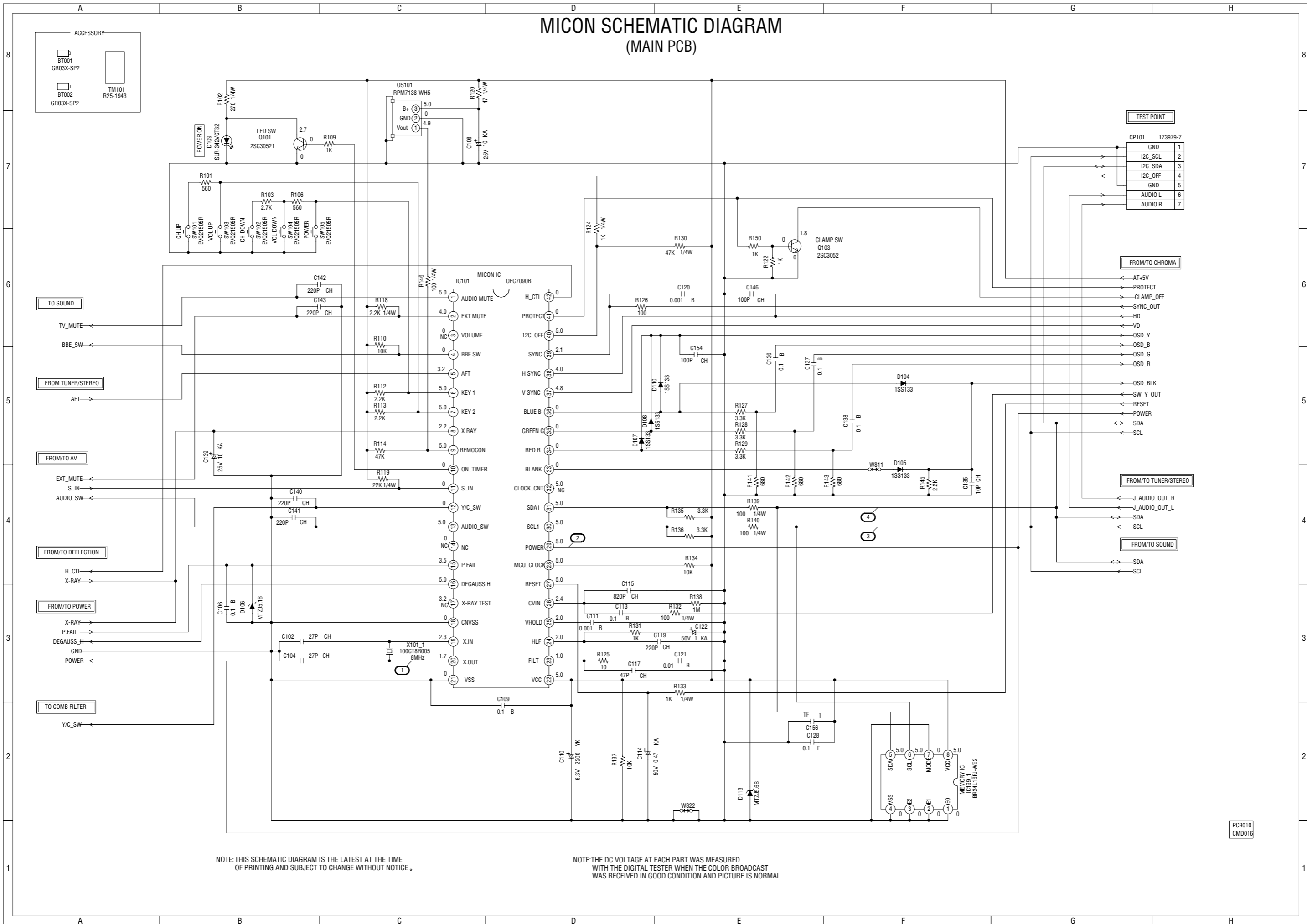
STEREO JCAK (INSERTED PARTS)  
SOLDER SIDE



STEREO JCAK (CHIP MOUNTED PARTS)  
SOLDER SIDE



# MICON SCHEMATIC DIAGRAM (MAIN PCB)



TEST POINT

CP101	173979-7
GND	1
I2C_SCL	2
I2C_SDA	3
I2C_OFF	4
GND	5
AUDIO L	6
AUDIO R	7

FROM/TO CHROMA

- ← AT+5V
- ← PROTECT
- ← CLAMP\_OFF
- ← SYNC\_OUT
- ← HD
- ← VD
- ← OSD\_Y
- ← OSD\_B
- ← OSD\_G
- ← OSD\_R
- ← OSD\_BLK
- ← SW\_Y\_OUT
- ← RESET
- ← POWER
- ← SDA
- ← SCL

FROM/TO TUNER/STEREO

- ← J\_AUDIO\_OUT\_R
- ← J\_AUDIO\_OUT\_L
- ← SDA
- ← SCL

FROM/TO SOUND

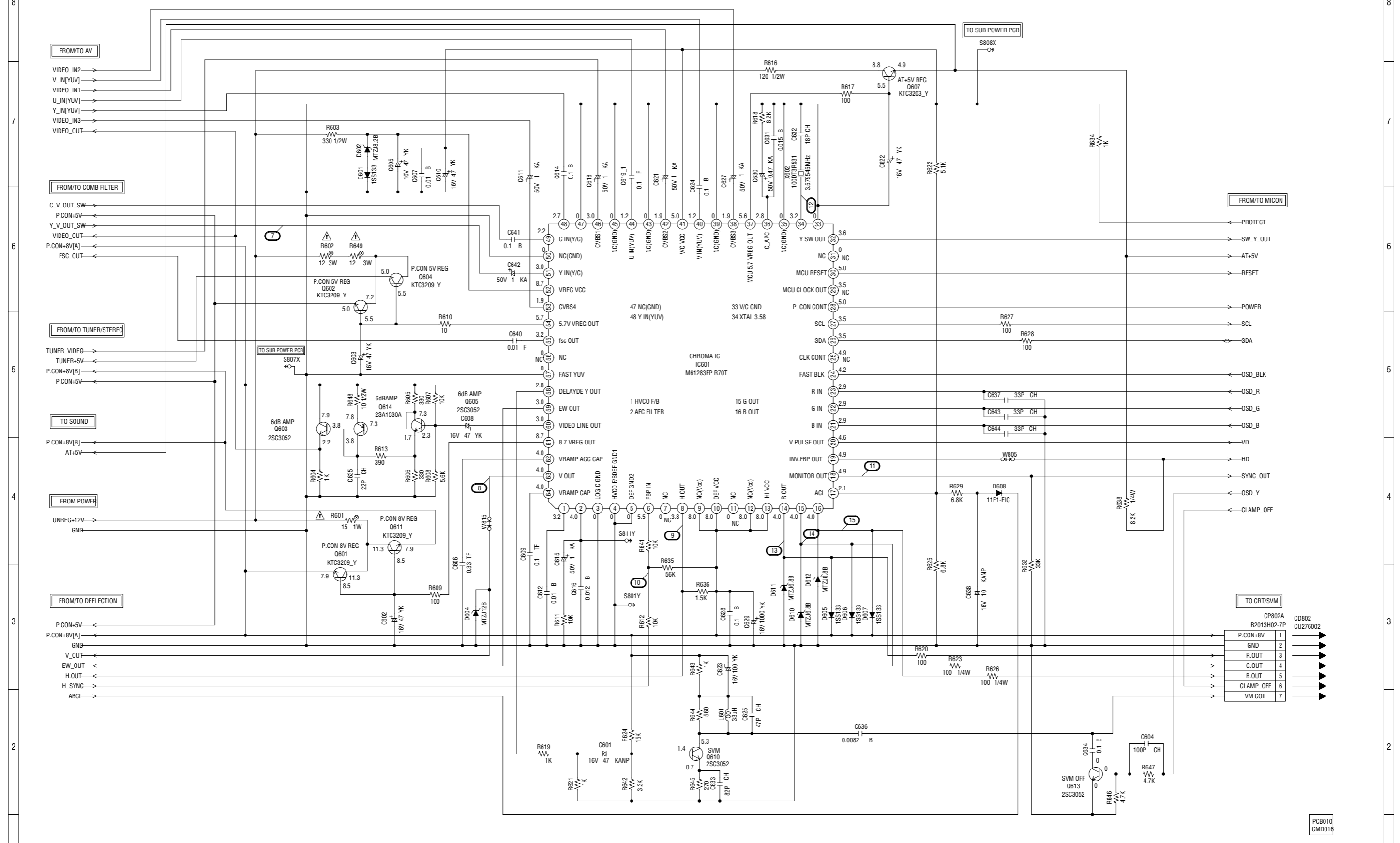
- ← SDA
- ← SCL

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

PCB010  
CMD016

# CHROMA SCHEMATIC DIAGRAM (MAIN PCB)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

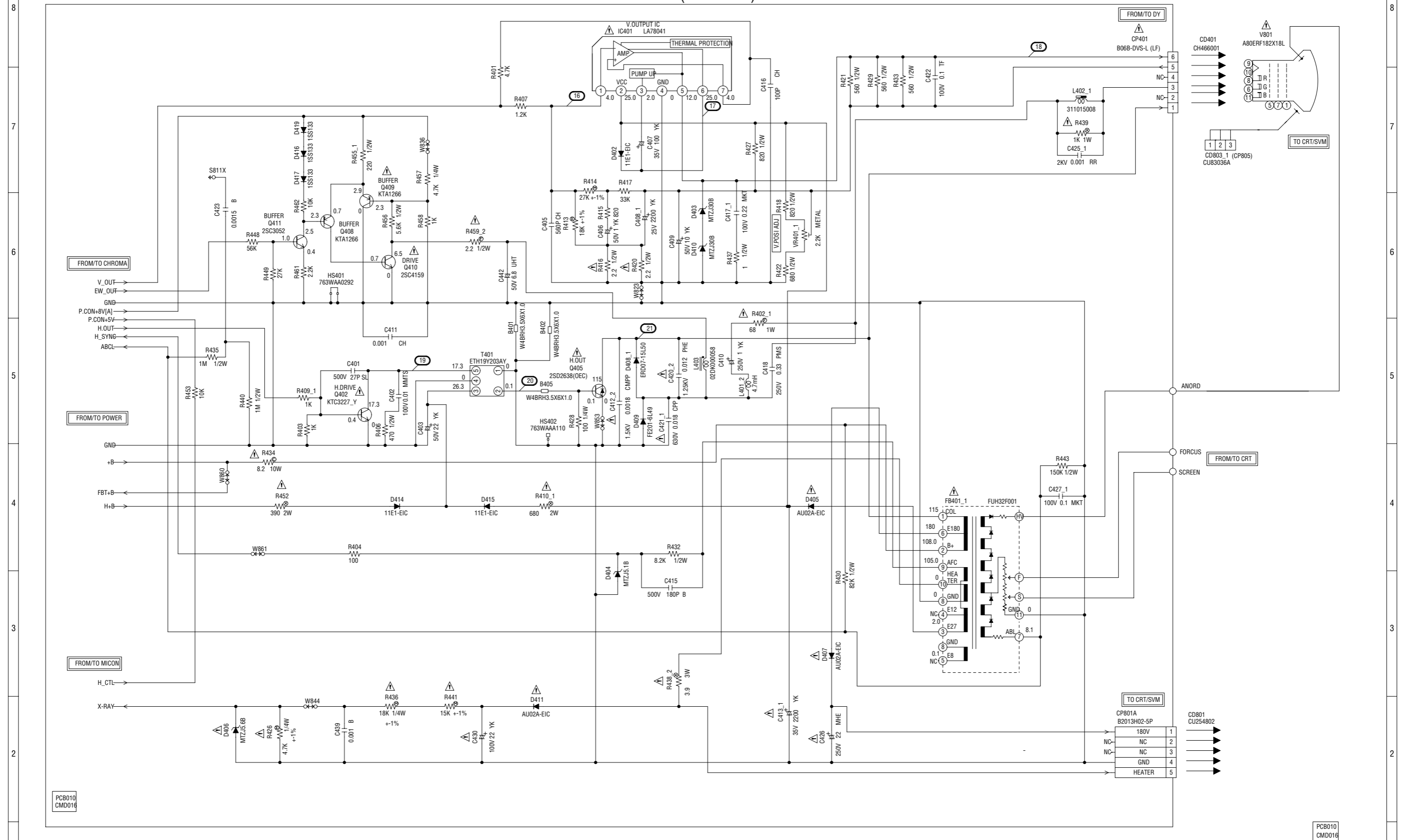
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

ATTENTION: LES PIÈCES RÉPARÉES PAR UN ÉTANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLES DECRITES DANS LA NOMENCLATURE DES PIÈCES.

CAUTION: SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

PCB010  
CMD016

# DEFLECTION SCHEMATIC DIAGRAM (MAIN PCB)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

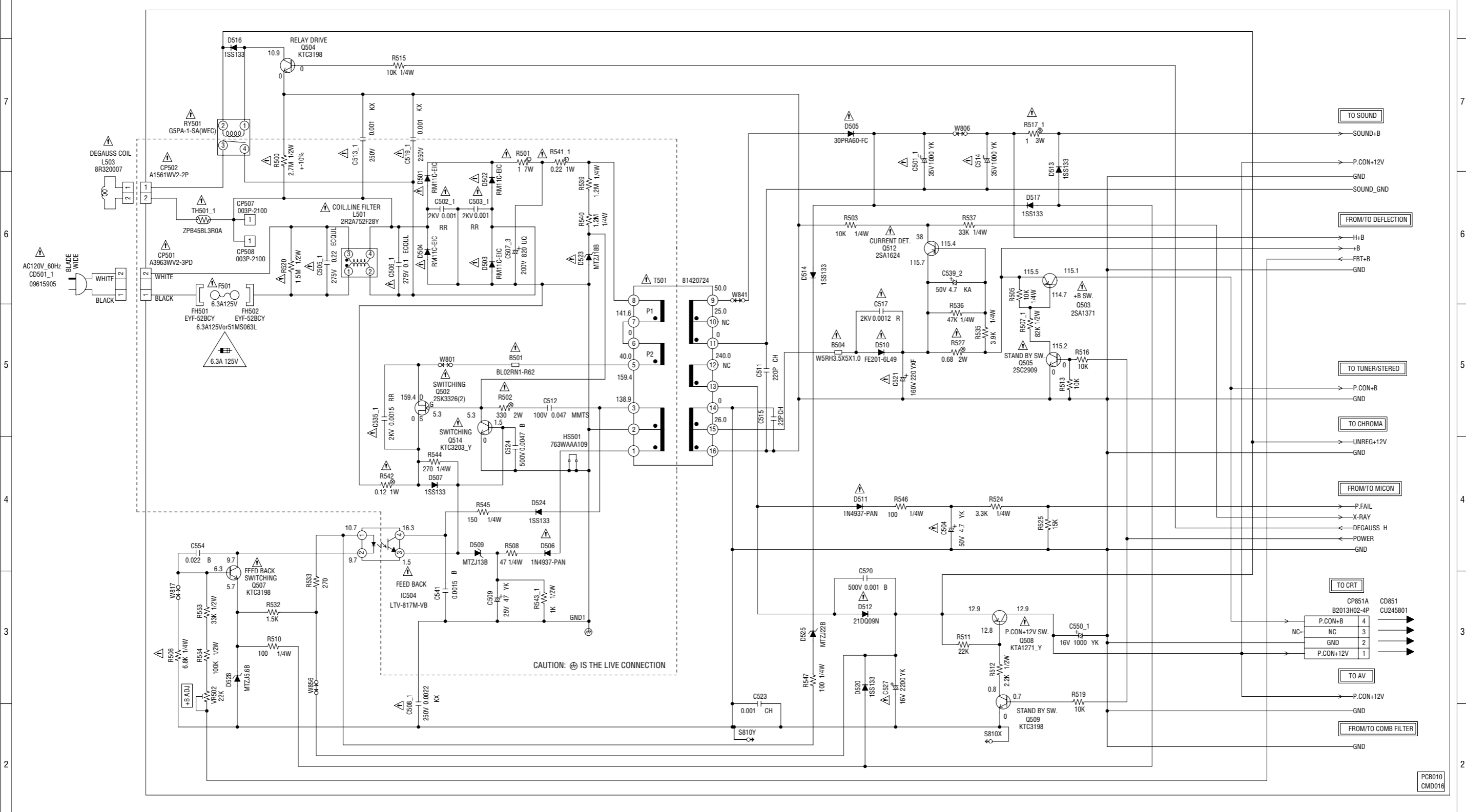
NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

**CAUTION** SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

**ATTENTION** LES PIECES REPARÉES PAR UN ÉTANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

# POWER SCHEMATIC DIAGRAM (MAIN PCB)



**CAUTION** FOR CONTINUED PROTECTION AGAINST FIRE HAZARD, REPLACE ONLY WITH THE SAME TYPE FUSE 6.3A 125V(F501)

**ATTENTION** POUR UNE PROTECTION CONTINUE LES RISQUES D'INCEIE N'UTILISER QUE DES FUSIBLE DE MEME TYPE 6.3A 125V(F501)

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

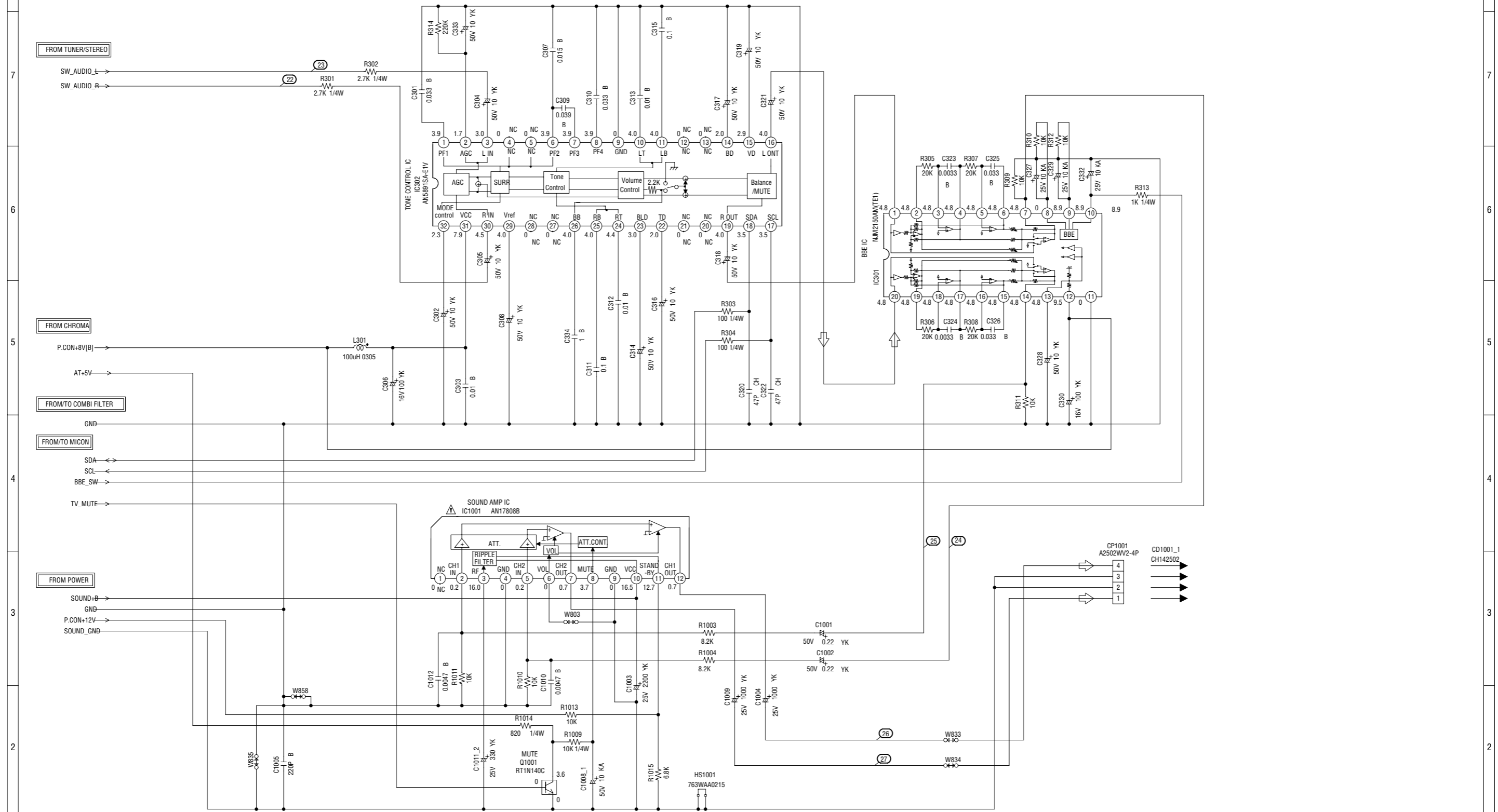
NOTE: THE RESISTOR MARKED F IS FUSE RESISTOR. THE ALUMI ELECTROLYTIC CAPACITOR MARKED NP IS NON POLAR ONE.

**ATTENTION** LES PIECES REPARÉES PAR UN ETANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

**CAUTION** SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.



# SOUND SCHEMATIC DIAGRAM (MAIN PCB)



PCB010  
CMD016

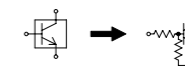
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

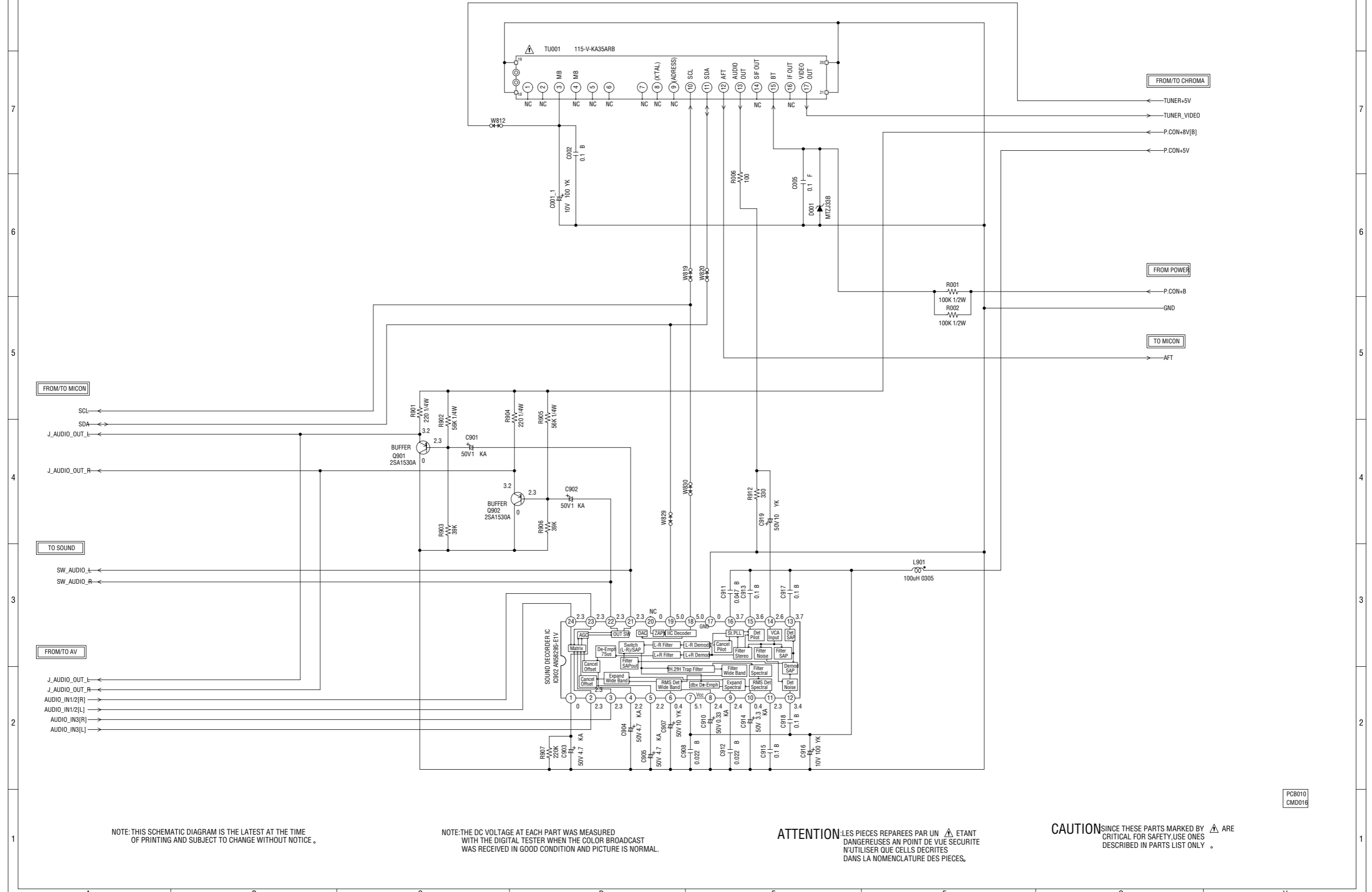
**ATTENTION:** LES PIÈCES RÉPARÉES PAR UN ÉTANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIÈCES.

**CAUTION:** SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

CAUTION: DIGITAL TRANSISTOR



# TUNER/STEREO SCHEMATIC DIAGRAM (MAIN PCB)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

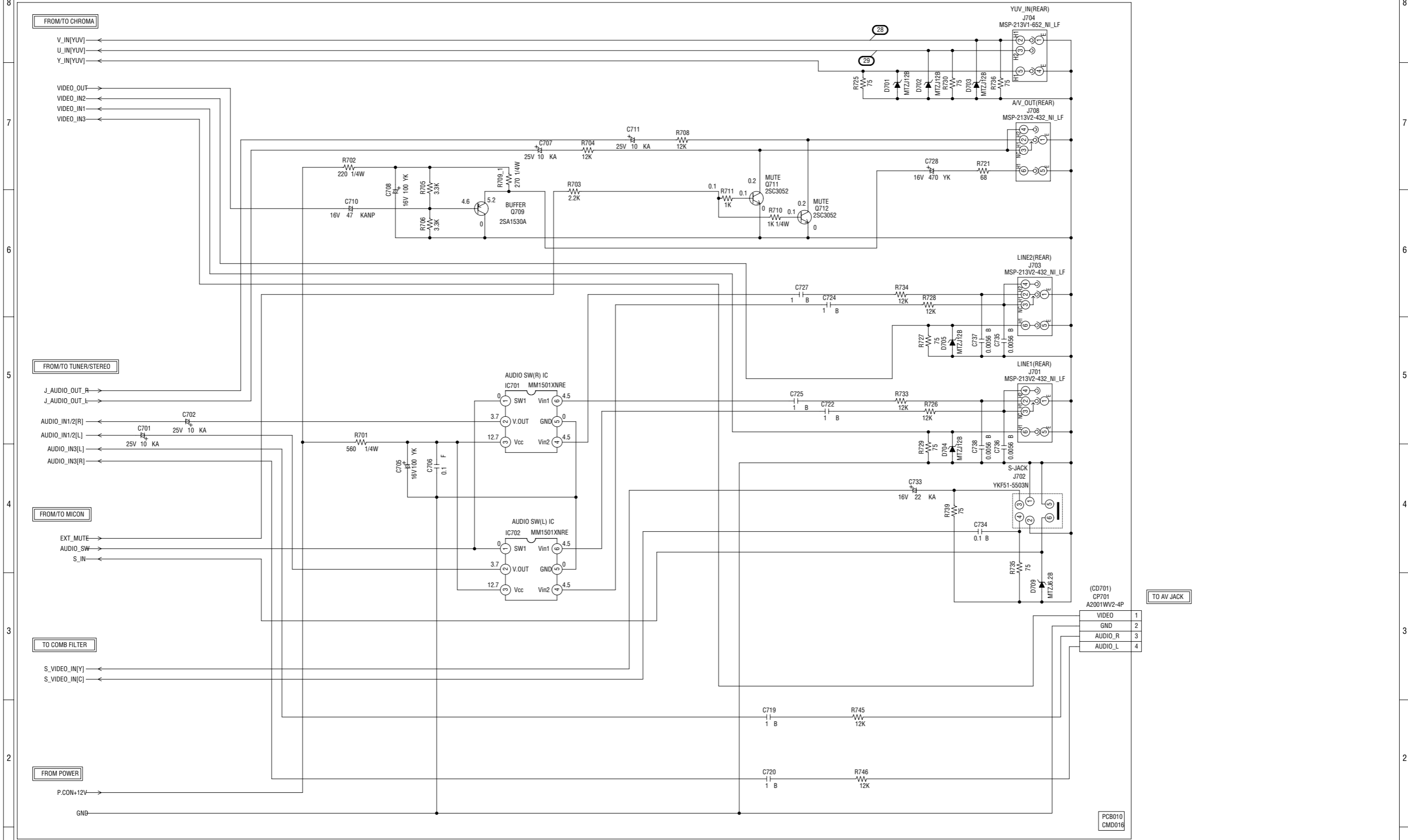
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

**ATTENTION:** LES PIECES REPARÉES PAR UN ÉTANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIECES.

**CAUTION:** SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

PCB010  
CMD016

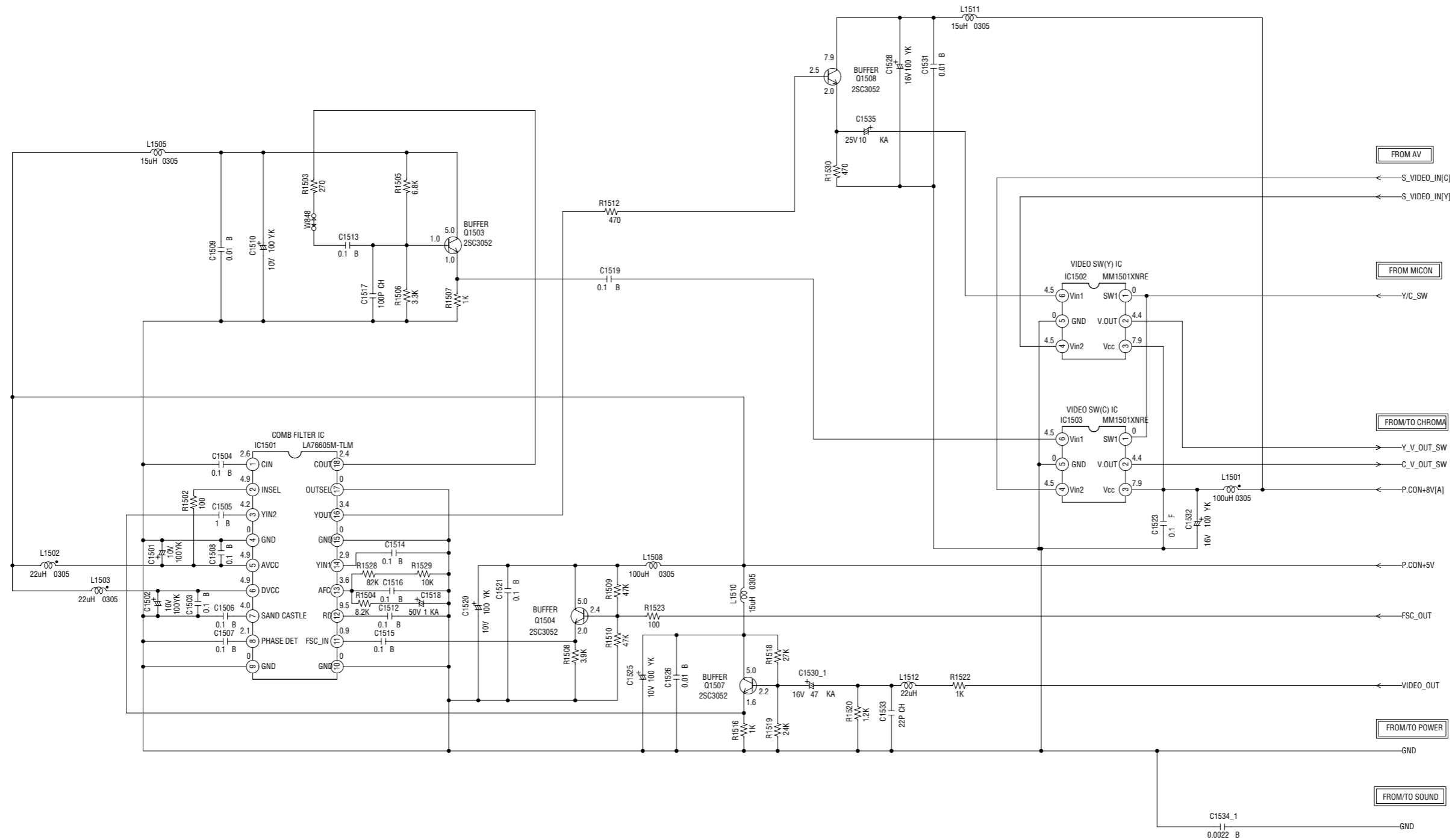
# AV SCHEMATIC DIAGRAM (MAIN PCB)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

# COMB FILTER SCHEMATIC DIAGRAM (MAIN PCB)

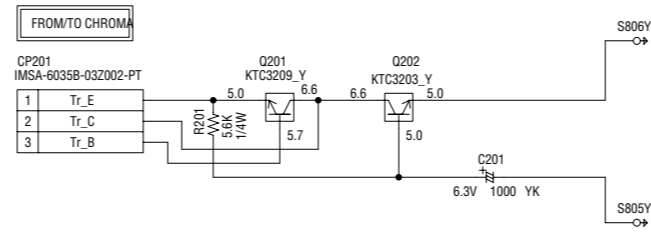


NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

PCB010  
CMD016

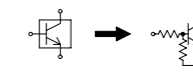
# SUB POWER SCHEMATIC DIAGRAM (POWER PCB)



NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

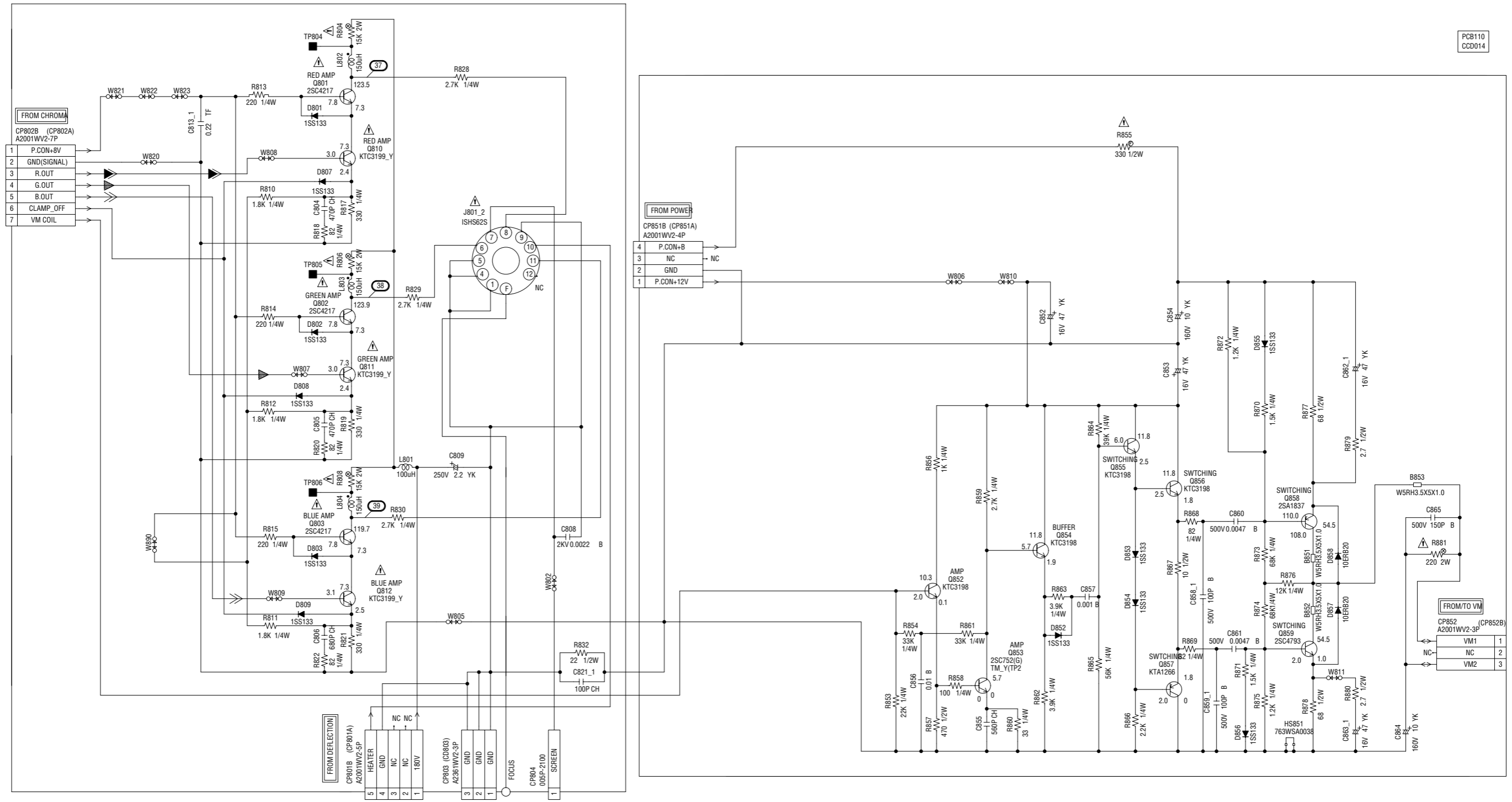
NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

CAUTION: DIGITAL TRANSISTOR



PCB240  
CED039

# CRT/SVM SCHEMATIC DIAGRAM (CRT PCB)



PCB110  
CCD014

NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

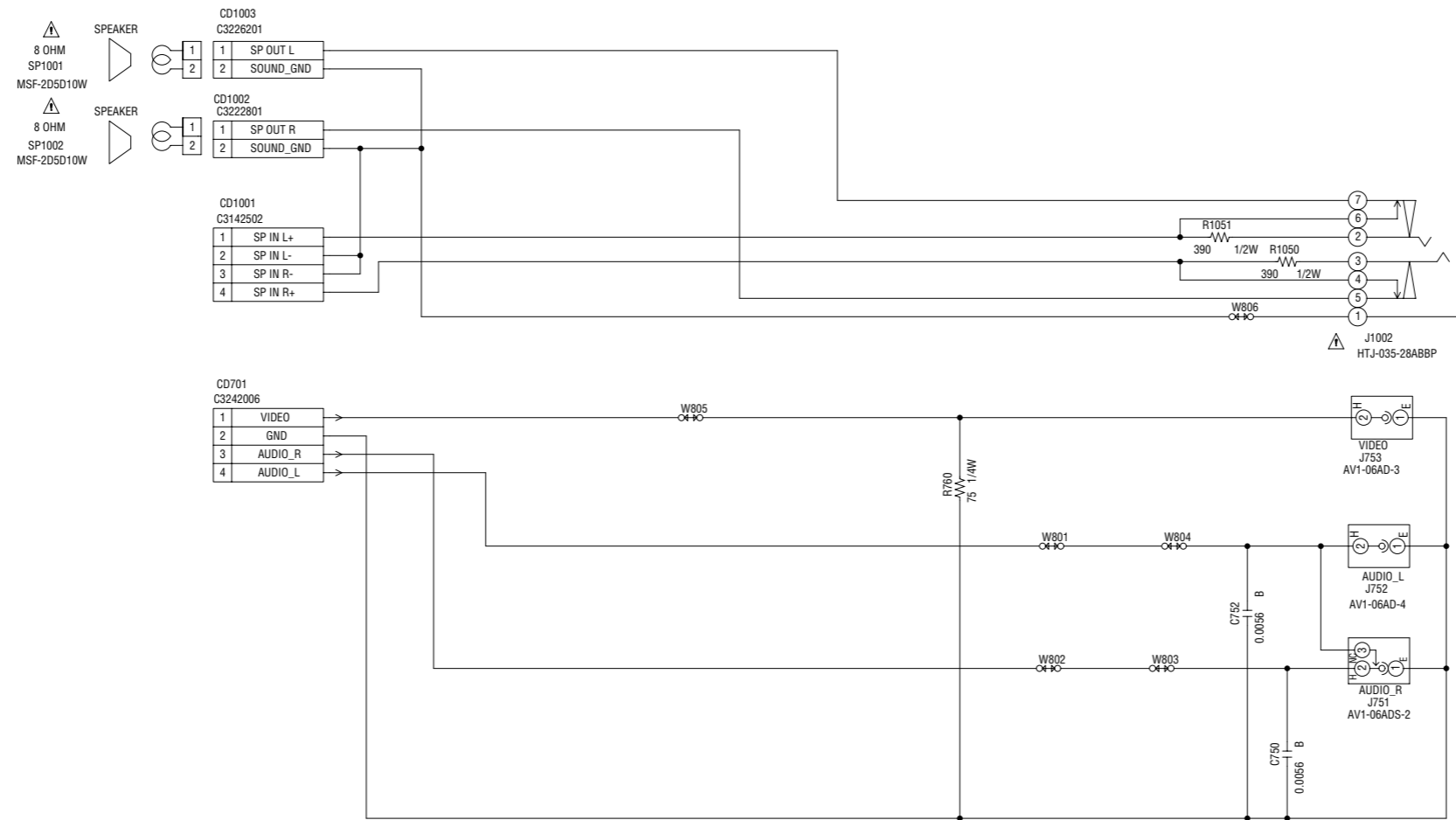
**CAUTION** SINCE THESE PARTS MARKED BY ARE CRITICAL FOR SAFETY, USE ONES DESCRIBED IN PARTS LIST ONLY.

**ATTENTION** LES PIÈCES RÉPARÉES PAR UN ÉTANT DANGEREUSES AN POINT DE VUE SECURITE N'UTILISER QUE CELLS DECRITES DANS LA NOMENCLATURE DES PIÈCES.

R.SIGNAL  
 G.SIGNAL  
 B.SIGNAL

# AV JACK SCHEMATIC DIAGRAM

(STEREO JACK PCB)



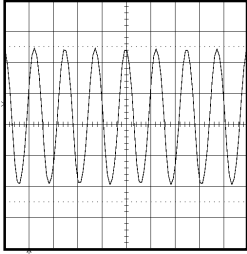
NOTE: THIS SCHEMATIC DIAGRAM IS THE LATEST AT THE TIME OF PRINTING AND SUBJECT TO CHANGE WITHOUT NOTICE.

NOTE: THE DC VOLTAGE AT EACH PART WAS MEASURED WITH THE DIGITAL TESTER WHEN THE COLOR BROADCAST WAS RECEIVED IN GOOD CONDITION AND PICTURE IS NORMAL.

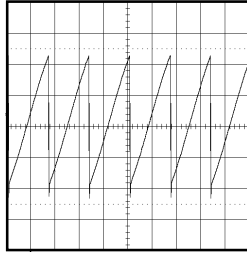
PCB280  
CED038

# WAVEFORMS

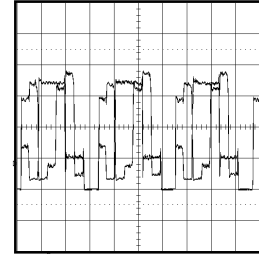
## MICON



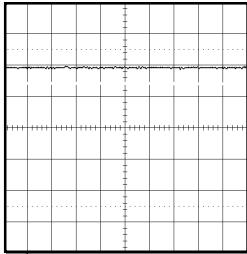
① 1V 0.1μs/div



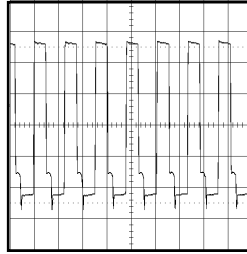
⑧ 0.5V 10ms/div



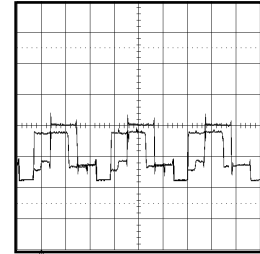
⑬ 1V 20μs/div



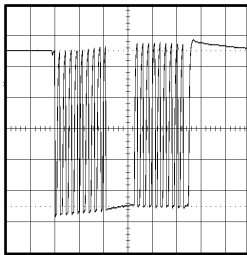
② 1V 1μs/div



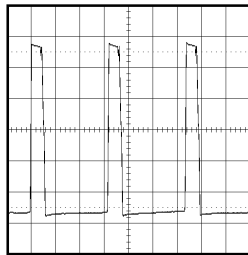
⑨ 1V 50μs/div



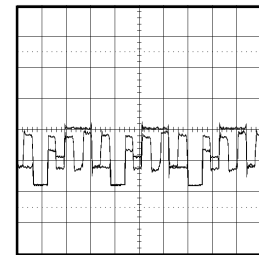
⑭ 2V 20μs/div



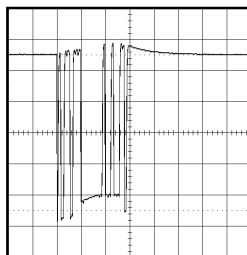
③ 1V 50μs/div



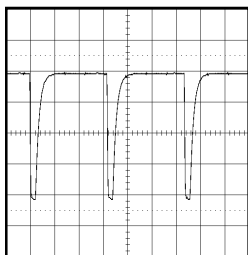
⑩ 2V 20μs/div



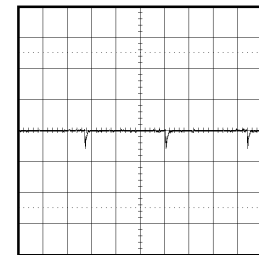
⑮ 2V 20μs/div



④ 1V 0.1ms/div

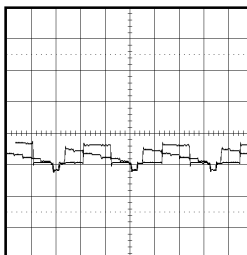


⑪ 0.5V 20μs/div

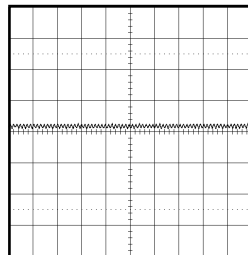


⑯ 2V 5ms/div

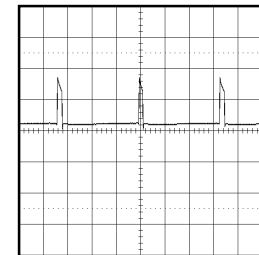
## CHROMA



⑦ 1V 20μs/div



⑫ 1V 2μs/div



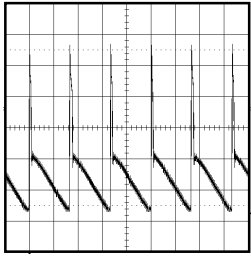
⑰ 20V 5ms/div

## DEFLECTION

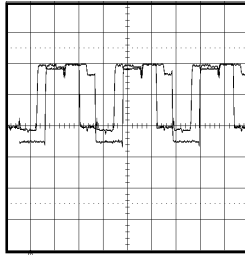
**NOTE:** The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.



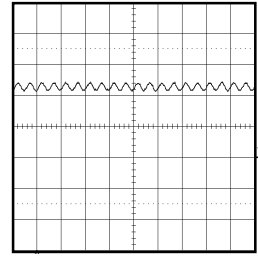
## WAVEFORMS



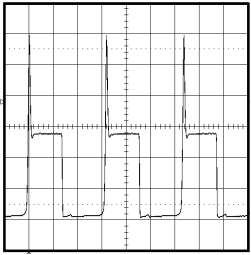
⑱ 10V 10ms/div



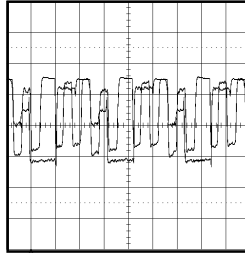
⑳ 50V 20 $\mu$ s/div



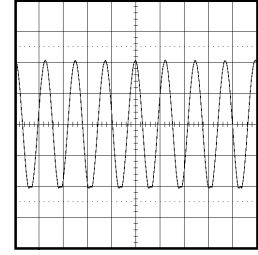
㉑ 2V 5ms/div



㉒ 20V 20 $\mu$ s/div

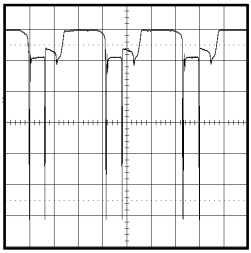


㉓ 50V 20 $\mu$ s/div

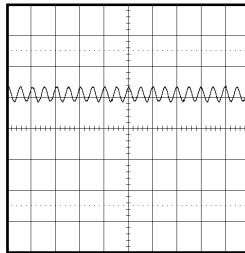


㉔ 5V 2ms/div

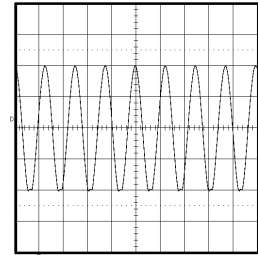
## SOUND



㉕ 2V 20 $\mu$ s/div

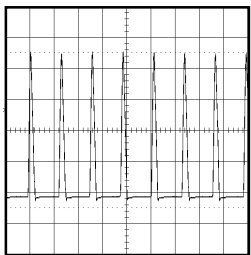


㉖ 2V 5ms/div

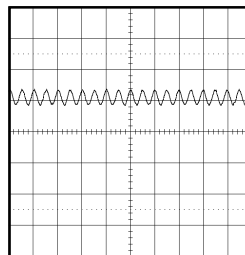


㉗ 5V 2ms/div

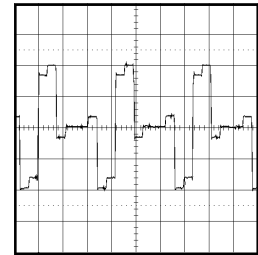
## AV



㉘ 200V 50 $\mu$ s/div

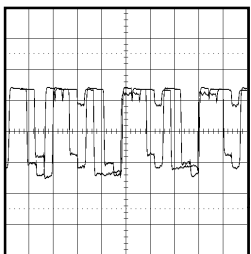


㉙ 2V 5ms/div

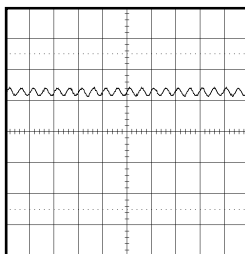


㉚ 200mV 20 $\mu$ s/div

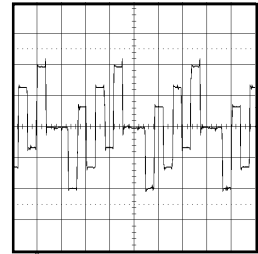
## CRT



㉛ 50V 20 $\mu$ s/div



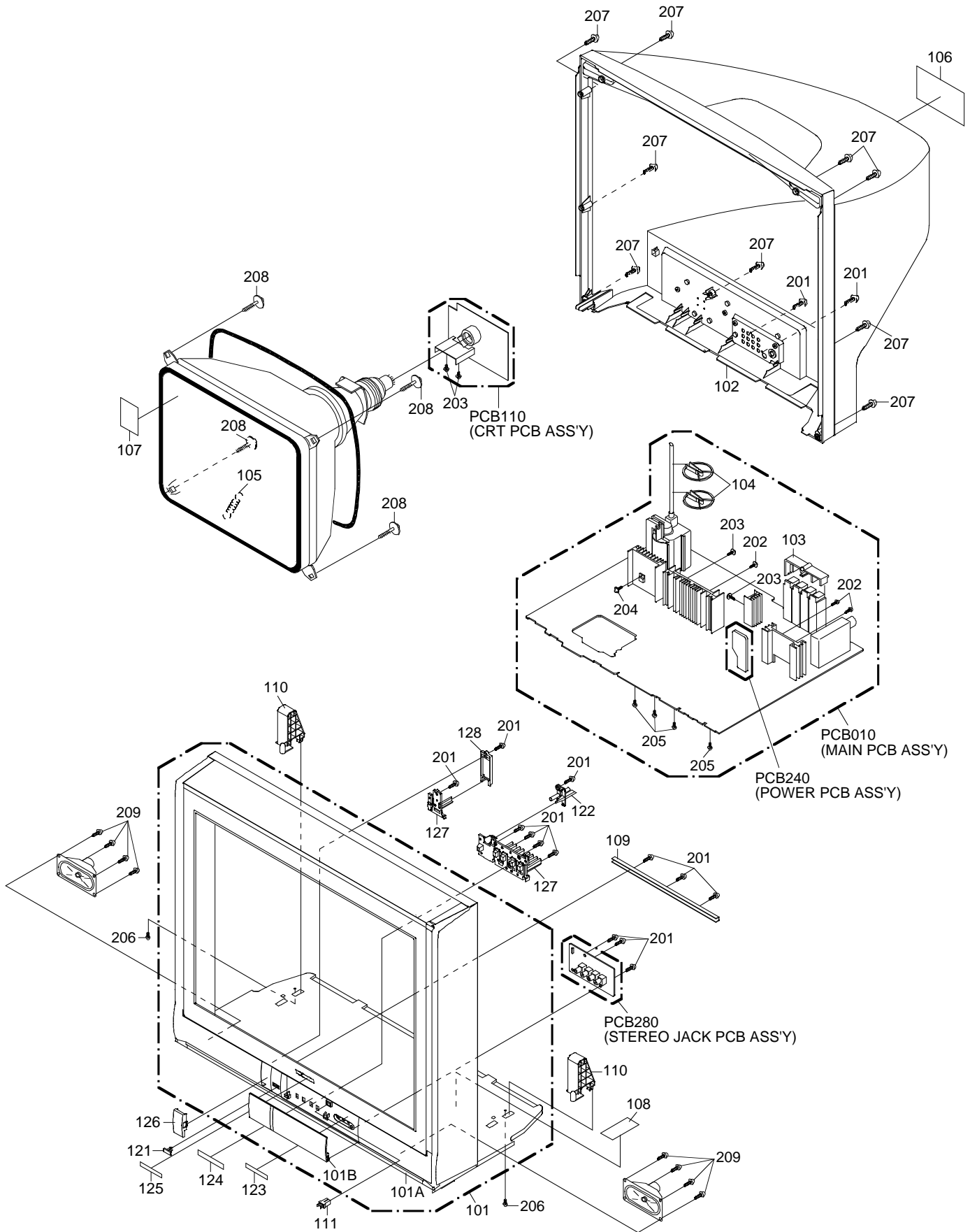
㉜ 2V 5ms/div



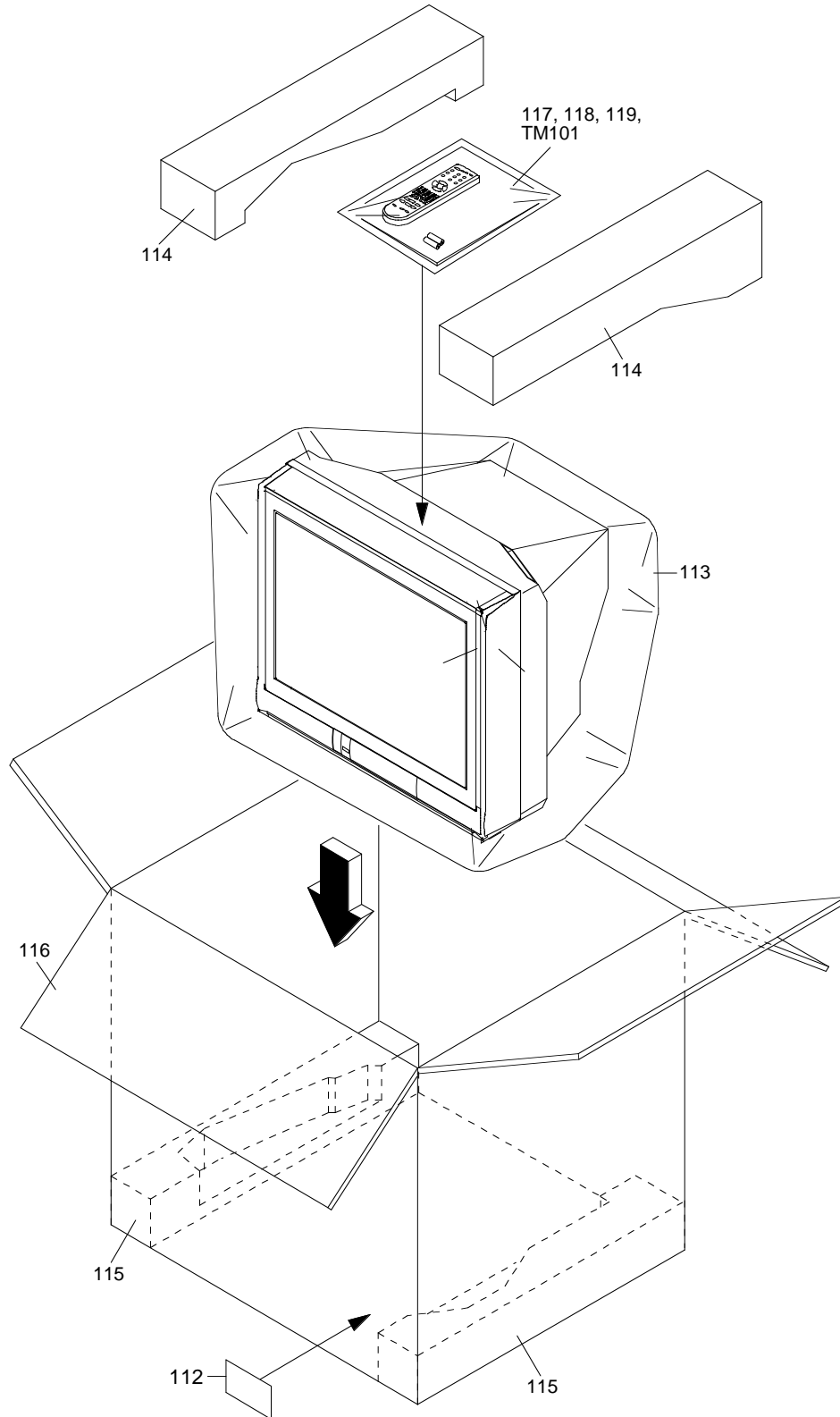
㉝ 200mV 20 $\mu$ s/div

**NOTE:** The following waveforms were measured at the point of the corresponding balloon number in the schematic diagram.

# MECHANICAL EXPLODED VIEW



# MECHANICAL EXPLODED VIEW (PACKING DIAGRAM)



# MECHANICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
101	AE007524	7A701A391A	FRONT CABI ASS'Y	
101A	AE007525	701APJA140	CABINET,FRONT	
101B	AE007526	712APJA010	DOOR	
102	AE007527	A3S901J740L	CABINET,BACK ASSY	
103	AD301616	761WPA0263	HOLDER,JACK	
104	BZ710260	899HV3T000	HOLDER,ANODE WIRE	
105	BZ710660	741WUA0021	SPRING,EARTH	
106	AE007528	722549A451	SHEET,RATING	
107	AE007529	723000C880	FILM,DECORATION	
108	AD300766	7260000306	SHEET,CAUTION	
109	AE007530	752WSAA123	ANGLE,FRONT	
110	AE007531	761WPA0399	HOLDER,CRT	
111	AE004841	890DL20000	DOOR LATCHES(DL2)	
112	AE007532	723000C879	SHEET,BAR CODE	
113	AE007533	791AHAA001	FILM BAG	
114	AE007534	792AHAA006	PACKAGE, TOP	
115	AE007535	792AHAA007	PACKAGE, BOTTOM	
116	AE007536	793ACDA190	GIFT BOX	
117	AE006352	JA4LD200A	POLYBAG,INSTRUCTION(REDCAUTION)	
118	AE006353	J3N11517A	REGISTRATION CARD	
119	AE007537	J3S90121A	INSTRUCTION BOOK	
120	AE007538	A3S901J975	INSTRUCTION BOOK KIT	
121	AE007539	711WPA0232	PLATE,FRONT	
122	AE007540	713WPA0364	GUIDE,REMOCON	
123	AE007541	723000C932	AV LABEL	
124	AE004824	7230007791	SHEET,BUTTON	
125	AE003022	723549A026	BADGE,BRAND	
126	AE007542	735APJA002	BUTTON,POWER	
127	AE007543	735WPB0320	BUTTON,ASSY	
128	AE007544	738WPA0160	STOPPER,BUTTON	
201	AE003528	8110630A0U	SCREW,TAP TITE(P) BRAZIER	3x10
202	AE003531	810763080U	SCREW,TAP TITE(S) BRAZIER	3x8
203	AE003524	8109I30A0U	SCREW,TAP TITE(B) WH7	3x10
204	AE005659	8109I3080U	SCREW,TAP TITE(B) WH7	3x8
205	AE005917	810963080Q	SCREW,TAP TITE(B) BRAZIER	3x8
206	AE006235	8117140A2U	SCREW,TAPPING(B0) PAN	4x12
207	AE003522	8117540B0U	SCREW,TAP TITE(B0) TRUSS	4x20
208	AE004848	8141H60D5U	SCREW,TAP TITE(P) GW20	6x45
209	AE007545	8146D26A0U	SCREW,TAP TITE(P) WH8	2.6x10+3.8x8

# MECHANICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description	
101	AE007524	7A701A391A	FRONT CABI ASS'Y	
101A	AE007525	701APJA140	CABINET,FRONT	
101B	AE007526	712APJA010	DOOR	
102	AE007546	A3S902J740L	CABINET,BACK ASSY	
103	AD301616	761WPA0263	HOLDER,JACK	
104	BZ710260	899HV3T000	HOLDER,ANODE WIRE	
105	BZ710660	741WUA0021	SPRING,EARTH	
106	AE007547	722549A471	SHEET,RATING	
107	AE007548	723000C951	FILM,DECORATION	
108	AD301425	7240001120	SHEET,CSA	
109	AE007530	752WSAA123	ANGLE,FRONT	
110	AE007531	761WPA0399	HOLDER,CRT	
111	AE004841	890DL20000	DOOR LATCHES(DL2)	
112	AE007549	723000C950	SHEET,BAR CODE	
113	AE007533	791AHAA001	FILM BAG	
114	AE007534	792AHAA006	PACKAGE, TOP	
115	AE007535	792AHAA007	PACKAGE, BOTTOM	
116	AE007550	793ACDA195	GIFT BOX	
117	AE006363	JA4LD100A	POLYBAG,INSTRUCTION(REDCAUTION)	
119	AE007551	J3S90221A	INSTRUCTION BOOK	
120	AE007552	A3S902J975	INSTRUCTION BOOK KIT	
121	AE007539	711WPA0232	PLATE,FRONT	
122	AE007540	713WPA0364	GUIDE,REMOCON	
123	AE007541	723000C932	AV LABEL	
124	AE004824	7230007791	SHEET,BUTTON	
125	AE003022	723549A026	BADGE,BRAND	
126	AE007542	735APJA002	BUTTON,POWER	
127	AE007543	735WPB0320	BUTTON,ASSY	
128	AE007544	738WPA0160	STOPPER,BUTTON	
201	AE003528	8110630A0U	SCREW,TAP TITE(P) BRAZIER	3x10
202	AE003531	810763080U	SCREW,TAP TITE(S) BRAZIER	3x8
203	AE003524	8109I30A0U	SCREW,TAP TITE(B) WH7	3x10
204	AE005659	8109I3080U	SCREW,TAP TITE(B) WH7	3x8
205	AE005917	810963080Q	SCREW,TAP TITE(B) BRAZIER	3x8
206	AE006235	8117140A2U	SCREW,TAPPING(B0) PAN	4x12
207	AE003522	8117540B0U	SCREW,TAP TITE(B0) TRUSS	4x20
208	AE004848	8141H60D5U	SCREW,TAP TITE(P) GW20	6x45
209	AE007545	8146D26A0U	SCREW,TAP TITE(P) WH8	2.6x10+3.8x8

# ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
<b>RESISTORS</b>			
△ R402	AE006295	R65501680J	R,FUSE 68 OHM 1W
△ R410	AE004890	R3X18A681J	R,METAL OXIDE 680 OHM 2W
△ R416	BZ210053	R002T22R2J	RC 2.2 OHM 1/2W
△ R420	BZ210053	R002T22R2J	RC 2.2 OHM 1/2W
△ R426	BZ210030	R4X5T4472F	R,METAL 4.7K OHM 1/4W
△ R434	AE007521	R5X2CF8R2J	R,CEMENT 8.2 OHM 10W
△ R436	BZ210023	R4X5T4183F	R,METAL 18K OHM 1/4W
△ R438	AE000037	R3X28B3R9J	R,METAL 3.9 OHM 3W
△ R439	BZ210003	R3K181102J	R,METAL OXIDE 1K OHM 1W
R440	AE007520	R00202105J	RC 1M OHM 1/2W
△ R441	BZ210231	R4X5T6153F	R,METAL 15K OHM 1/6W
△ R452	AD301385	R3X18A391J	R,METAL OXIDE 390 OHM 2W
△ R459	AE003590	R655822R2J	R,FUSE 2.2 OHM 1/2W
△ R500	BZ210080	R0G3K2275K	RC 2.7M OHM 1/2W
△ R501	BZ210117	R5X2CE010J	R,CEMENT 1 OHM 7W
△ R502	BZ210249	R3X28A331J	R,METAL OXIDE 330 OHM 2W
△ R506	BZ210162	R002T4682J	RC 6.8K OHM 1/4W
R507	AE002597	R00202823J	RC 82K OHM 1/2W
△ R517	BZ210191	R3X28B010J	R,METAL OXIDE 1 OHM 3W
△ R520	BZ210206	R002T2155J	RC 1.5M OHM 1/2W
△ R527	BZ210149	R3X18AR68J	R,METAL OXIDE 0.68 OHM 2W
△ R541	AE005735	R63881R22J	R,FUSE 0.22 OHM 1W
△ R542	BZ210268	R3X181R12J	R,METAL OXIDE 0.12 OHM 1W
△ R601	AE006340	R3X181150J	R,METAL OXIDE 15 OHM 1W
△ R602	AD301975	R3X28B120J	R,METAL OXIDE 12 OHM 3W
△ R649	AD301975	R3X28B120J	R,METAL OXIDE 12 OHM 3W
△ R804	BZ210026	R3X18A153J	R,METAL OXIDE 15K OHM 2W
△ R806	BZ210026	R3X18A153J	R,METAL OXIDE 15K OHM 2W
△ R808	BZ210026	R3X18A153J	R,METAL OXIDE 15K OHM 2W
R832	AE000901	R00202220J	RC 22 OHM 1/2W
△ R855	AD301019	R65582331J	R,FUSE 330 OHM 1/2W
△ R881	BZ210087	R3X18A221J	R,METAL OXIDE 220 OHM 2W
<b>CAPACITORS</b>			
C156	AE004040	P6M900105J	CMPL 1 UF 50V TF
C408	BZ210176	E02LF3222M	CE 2200 UF 25V
△ C412	AE004368	P4N8FK182H	CMPP 0.0018UF 1.5KV
△ C413	AE000814	E0ELF4222M	CE 2200 UF 35V
C418	BZ110174	P4J7F3334J	CMPP 0.33 UF 250V PMS
△ C420	AE007519	P4G8FJ123H	CMPP 0.012 UF 1.25KV PHE
△ C421	AD300048	P3N1F5183J	CPP 0.018 UF 630V
C425	BZ110202	C0PLRR713K	CC 0.001 UF 2KV R
△ C426	BZ110225	E5EZFD220M	CE 22 UF 250V
△ C430	BZ110195	E02LU8220M	CE 22 UF 100V
C442	AE006084	E736F56R8M	CE 6.8 UF 50V
△ C501	AD300067	E02LF4102M	CE 1000 UF 35V
△ C502	BZ110202	C0PLRR713K	CC 0.001 UF 2KV R
△ C503	BZ110202	C0PLRR713K	CC 0.001 UF 2KV R
△ C504	AE000467	E02LU54R7M	CE 4.7 UF 50V
△ C505	BZ110025	P2122B224M	CMP 0.22 UF 275V ECQUL
△ C506	BZ110035	P2122B104M	CMP 0.1 UF 275V ECQUL
C507	AE000417	E51DFC821M	CE 820 UF 200V
△ C508	BZ110222	CD39E0MH3M	CC 0.0022UF 250V
△ C513	AD301026	CD39E0M13M	CC 0.001 UF 250V
△ C514	AD300067	E02LF4102M	CE 1000 UF 35V
△ C517	BZ110178	C03L0R7B3K	CC 0.0012UF 2KV R
△ C519	AD301026	CD39E0M13M	CC 0.001 UF 250V
△ C521	BZ110228	E62NFB221M	CE 220 UF 160V
△ C527	BZ110119	E02LF2222M	CE 2200 UF 16V
△ C535	AE000874	C0PLRR7E3K	CC 0.0015 UF 2KV R
C615	AE003280	E52H05010M	CE 1 UF 50V
C808	BZ110226	C0JBB07H3K	CC 0.0022UF 2KV B
C1003	BZ210176	E02LF3222M	CE 2200 UF 25V
C1004	BZ110053	E02LF3102M	CE 1000 UF 25V
C1009	BZ110053	E02LF3102M	CE 1000 UF 25V
<b>DIODES</b>			
D001	BZ410037	D97U03301B	DIODE,ZENER MTZJ33B T-77
D104	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D105	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D106	BZ410020	D97U05R11B	DIODE,ZENER MTZJ5.1B T-77
D107	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D108	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77

# ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
			<b>DIODES</b>
D109	BZ410054	0021721150	LED
D110	BZ410006	D1VT001330	DIODE,SILICON
D113	BZ410021	D97U05R61B	DIODE,ZENER
D402	BZ410043	D2WT011E10	DIODE,SILICON
D403	BZ410019	D97U03001B	DIODE,ZENER
D404	BZ410020	D97U05R11B	DIODE,ZENER
▲D405	BZ410063	D2WTAU02A0	DIODE,SILICON
▲D406	BZ410021	D97U05R61B	DIODE,ZENER
▲D407	BZ410063	D2WTAU02A0	DIODE,SILICON
D408	AD302110	D2CF0715L0	DIODE,SILICON
D409	AD301980	D2CF2016L0	DIODE,SILICON
D410	BZ410019	D97U03001B	DIODE,ZENER
▲D411	BZ410063	D2WTAU02A0	DIODE,SILICON
D414	BZ410043	D2WT011E10	DIODE,SILICON
D415	BZ410043	D2WT011E10	DIODE,SILICON
D416	BZ410006	D1VT001330	DIODE,SILICON
D417	BZ410006	D1VT001330	DIODE,SILICON
D419	BZ410006	D1VT001330	DIODE,SILICON
▲D501	BZ410062	D2WTRM11C0	DIODE,SILICON
▲D502	BZ410062	D2WTRM11C0	DIODE,SILICON
▲D503	BZ410062	D2WTRM11C0	DIODE,SILICON
▲D504	BZ410062	D2WTRM11C0	DIODE,SILICON
▲D505	AE006082	D28F0PRA60	DIODE,RECTIFIER
▲D506	AE007489	D2MXN49370	DIODE,FAST RECOVERY
D507	BZ410006	D1VT001330	DIODE,SILICON
D509	BZ410034	D97U01301B	DIODE,ZENER
▲D510	AD301980	D2CF2016L0	DIODE,SILICON
▲D511	AE007489	D2MXN49370	DIODE,FAST RECOVERY
▲D512	BZ410010	D28T21DQN9	DIODE,SCHOTTKY
D513	BZ410006	D1VT001330	DIODE,SILICON
D514	BZ410006	D1VT001330	DIODE,SILICON
D516	BZ410006	D1VT001330	DIODE,SILICON
D517	BZ410006	D1VT001330	DIODE,SILICON
D520	BZ410006	D1VT001330	DIODE,SILICON
▲D523	AD300671	D97U01801B	DIODE,ZENER
D524	BZ410006	D1VT001330	DIODE,SILICON
D525	BZ410113	D97U02201B	DIODE,ZENER
D528	BZ410021	D97U05R61B	DIODE,ZENER
D601	BZ410006	D1VT001330	DIODE,SILICON
D602	BZ410058	D97U08R21B	DIODE,ZENER
D604	AD300070	D97U01201B	DIODE,ZENER
D605	BZ410006	D1VT001330	DIODE,SILICON
D606	BZ410006	D1VT001330	DIODE,SILICON
D607	BZ410006	D1VT001330	DIODE,SILICON
D608	BZ410043	D2WT011E10	DIODE,SILICON
D610	BZ410022	D97U06R81B	DIODE,ZENER
D611	BZ410022	D97U06R81B	DIODE,ZENER
D612	BZ410022	D97U06R81B	DIODE,ZENER
D701	AD300070	D97U01201B	DIODE,ZENER
D702	AD300070	D97U01201B	DIODE,ZENER
D703	AD300070	D97U01201B	DIODE,ZENER
D704	AD300070	D97U01201B	DIODE,ZENER
D705	AD300070	D97U01201B	DIODE,ZENER
D709	BZ410066	D97U06R21B	DIODE,ZENER
D801	BZ410006	D1VT001330	DIODE,SILICON
D802	BZ410006	D1VT001330	DIODE,SILICON
D803	BZ410006	D1VT001330	DIODE,SILICON
D807	BZ410006	D1VT001330	DIODE,SILICON
D808	BZ410006	D1VT001330	DIODE,SILICON
D809	BZ410006	D1VT001330	DIODE,SILICON
D852	BZ410006	D1VT001330	DIODE,SILICON
D853	BZ410006	D1VT001330	DIODE,SILICON
D854	BZ410006	D1VT001330	DIODE,SILICON
D855	BZ410006	D1VT001330	DIODE,SILICON
D856	BZ410006	D1VT001330	DIODE,SILICON
D857	AE006060	D28T0ERB20	DIODE,RECTIFIER
D858	AE006060	D28T0ERB20	DIODE,RECTIFIER
			<b>ICS</b>
IC101	AE006067	I56F07090B	IC
IC199	AE007515	A3S901J015	INIT DATA
IC301	AE006297	I0QJ021500	IC

# ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	ICS	Description
IC302	AD301983	I01FF58910	IC	AN5891SA-E1V
△IC401	BZ611117	I03TD80410	IC	LA78041
△IC504	BZ410088	0002E00610	PHOTO COUPLER	LTV-817M-VB
IC601	AE002803	I06FC1283A	IC	M61283FP R70T
IC701	AD301988	I0UF015010	IC	MM1501XNRE
IC702	AD301988	I0UF015010	IC	MM1501XNRE
IC902	BZ611068	I01FF58290	IC	AN5829S-E1V
△IC1001	AE003081	I0FSP7808B	IC	AN17808B
IC1501	AE003002	I03FE76605	IC	LA76605M-TLM
IC1502	AD301988	I0UF015010	IC	MM1501XNRE
IC1503	AD301988	I0UF015010	IC	MM1501XNRE
<b>TRANSISTORS</b>				
Q101	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q103	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q201	BZ510105	TCAT03209Y	TRANSISTOR,SILICON	KTC3209_Y-AT
Q202	BZ510070	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
△Q402	BZ510097	TCAT03227Y	TRANSISTOR,SILICON	KTC3227_Y-AT
△Q405	AD302136	TD50026380	TRANSISTOR,SILICON	2SD2638(OEC)
Q408	BZ510073	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
△Q409	BZ510073	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
△Q410	BZ510110	TC30041590	TRANSISTOR,SILICON	2SC4159(D,E)
Q411	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
△Q502	BZ510098	T220033260	FET	2SK3326(2)
△Q503	BZ510005	TA3T1371A0	TRANSISTOR,SILICON	2SA1371(D,E)-AE
Q504	BZ510069	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
△Q505	BZ510011	TC3T029090	TRANSISTOR,SILICON	2SC2909(S,T)-AA
△Q507	BZ510069	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
△Q508	BZ510077	TAAT012714	TRANSISTOR,SILICON	KTA1271_Y-AT
Q509	BZ510069	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
△Q512	BZ510004	TA3T016240	TRANSISTOR,SILICON	2SA1624-AA
△Q514	BZ510070	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
Q601	BZ510105	TCAT03209Y	TRANSISTOR,SILICON	KTC3209_Y-AT
Q602	BZ510105	TCAT03209Y	TRANSISTOR,SILICON	KTC3209_Y-AT
Q603	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q604	BZ510105	TCAT03209Y	TRANSISTOR,SILICON	KTC3209_Y-AT
Q605	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q607	BZ510070	TCAT032034	TRANSISTOR,SILICON	KTC3203_Y-AT
Q610	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q611	BZ510105	TCAT03209Y	TRANSISTOR,SILICON	KTC3209_Y-AT
Q613	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q614	AE005872	T6RA015300	TRANSISTOR,SILICON	2SA1530A-T1
Q709	AE005872	T6RA015300	TRANSISTOR,SILICON	2SA1530A-T1
Q711	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q712	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
△Q801	BZ510009	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
△Q802	BZ510009	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
△Q803	BZ510009	TC3F042170	TRANSISTOR,SILICON	2SC4217(D,E)-RAC
△Q810	BZ510100	TCATC3199Y	TRANSISTOR,SILICON	KTC3199_Y-AT
△Q811	BZ510100	TCATC3199Y	TRANSISTOR,SILICON	KTC3199_Y-AT
△Q812	BZ510100	TCATC3199Y	TRANSISTOR,SILICON	KTC3199_Y-AT
Q852	BZ510069	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q853	AE004818	TCUT0752GY	TRANSISTOR,SILICON	2SC752(G)TLM_Y(TP2)
Q854	BZ510069	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q855	BZ510069	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q856	BZ510069	TCATC31980	TRANSISTOR,SILICON	KTC3198-AT(Y,GR)
Q857	BZ510073	TAATA12660	TRANSISTOR,SILICON	KTA1266-AT(Y,GR)
Q858	AD300029	TAU0018370	TRANSISTOR,SILICON	2SA1837
Q859	AD300025	TCU0047930	TRANSISTOR,SILICON	2SC4793
Q901	AE005872	T6RA015300	TRANSISTOR,SILICON	2SA1530A-T1
Q902	AE005872	T6RA015300	TRANSISTOR,SILICON	2SA1530A-T1
Q1001	AE006306	TNRAB05005	COMPOUND TRANSISTOR	RT1N140C-T1
Q1503	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q1504	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q1507	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
Q1508	AE005873	T8RA030520	TRANSISTOR,SILICON	2SC3052-T1
<b>COILS &amp; TRANSFORMERS</b>				
L301	BZ310041	02167F101J	COIL	100 UH
L401	AE007497	021U6D472K	COIL	4.7 MH
L402	AE007498	022K00047A	COIL,LINEARITY	311015008
L403	AD301606	02DK000058	COIL,CHOKE	02DK000058



# ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
<b>COILS &amp; TRANSFORMERS</b>			
▲ L501	AD301124	029T000101	COIL,LINE FILTER 2R2A752F28Y
▲ L503	AE007499	028R320007	COIL,DEGAUSS 8R320007
L601	AD301990	021LA6330J	COIL 33 UH
L801	BZ310002	021673101K	COIL 100 UH
L802	BZ310170	021673151K	COIL 150 UH
L803	BZ310170	021673151K	COIL 150 UH
L804	BZ310170	021673151K	COIL 150 UH
L901	BZ310041	02167F101J	COIL 100 UH
L1501	BZ310041	02167F101J	COIL 100 UH
L1502	BZ310039	02167F220J	COIL 22 UH
L1503	BZ310039	02167F220J	COIL 22 UH
L1505	AD300613	02167F150J	COIL 15 UH
L1508	BZ310041	02167F101J	COIL 100 UH
L1510	AD300613	02167F150J	COIL 15 UH
L1511	AD300613	02167F150J	COIL 15 UH
L1512	BZ310183	021LA6220J	COIL 22 UH
T401	BZ310189	0450190161	TRANS,HORIZONTAL DRIVE ETH19Y203AY
▲ T501	AE007501	0481420724	TRANSFORMER,SWITCHING 81420724
<b>JACKS</b>			
J701	AE002759	060J431020	RCA JACK MSP-213V2-432_NI_LF
J702	AE006074	063Q700011	JACK YKF51-5503N
J703	AE002759	060J431020	RCA JACK MSP-213V2-432_NI_LF
J704	AE002761	060J411032	RCA JACK MSP-213V1-652_NI_LF
J708	AE002759	060J431020	RCA JACK MSP-213V2-432_NI_LF
J751	AE006073	060Q421048	RCA JACK AV1-06ADS-2
J752	AE006072	060Q401109	RCA JACK AV1-06AD-4
J753	AE006071	060Q401108	RCA JACK AV1-06AD-3
▲ J801	AD301936	066F130021	SOCKET,CATHODE RAY,TUBE ISHS62S
▲ J1002	AE007502	060G131017	HEADPHONE JACK HTJ-035-28ABBP
<b>SWITCHES</b>			
SW101	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW102	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW103	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW104	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW105	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
<b>VARIABLE RESISTORS</b>			
VR401	BZ210218	V1K63H3BTE	VOLUME,SEMI FIXED NVG6TLTAB222
VR502	BZ210101	V1163H4BTC	VOLUME,SEMI FIXED EVNCYAA03BE4
<b>P.C.BOARD ASSEMBLIES</b>			
PCB010	AE007514	A3S901J010L	PCB ASSY CMD016C
PCB110	AE007516	A3S901J110L	PCB ASSY CCD014A
PCB240	AE007517	A3S901J240L	PCB ASSY CED039A
PCB280	AE007518	A3S901J280L	PCB ASSY CED038A
<b>MISCELLANEOUS</b>			
B401	BZ310129	024HT03564	CORE,BEADS W4BRH3.5X6X1.0
B402	BZ310129	024HT03564	CORE,BEADS W4BRH3.5X6X1.0
B405	BZ310129	024HT03564	CORE,BEADS W4BRH3.5X6X1.0
▲ B501	BZ310045	024AT03481	CORE,BEADS BL02RN1-R62T2
▲ B504	BZ310121	024HT03553	CORE,BEADS W5RH3.5X5X1.0
B851	BZ310121	024HT03553	CORE,BEADS W5RH3.5X5X1.0
B852	BZ310121	024HT03553	CORE,BEADS W5RH3.5X5X1.0
B853	BZ310121	024HT03553	CORE,BEADS W5RH3.5X5X1.0
BT001	AE005640	141R004016	BATTERY,MANGAN GR03X-SP2
BT002	AE005640	141R004016	BATTERY,MANGAN GR03X-SP2
CD401	AE007507	06CH466001	CORD,CONNECTOR CH466001
▲ CD501	AE007513	1209615905	CORD,AC BUSH 9615905
CD701	AE006076	06C3242006	CORD,CONNECTOR C3242006
CD801	AE007509	06CU254802	CORD,CONNECTOR CU254802
CD802	AE007510	06CU276002	CORD,CONNECTOR CU276002
CD803	AE003007	06CU83036A	CORD,CONNECTOR CU83036A
CD851	AE007508	06CU245801	CORD,CONNECTOR CU245801
CD852	AE007506	06CH232006	CORD,CONNECTOR CH232006
CP101	BZ614102	0694270139	CONNECTOR PCB SIDE 173979-7
CP201	AE006332	069J130340	CONNECTOR PCB SIDE IMSA-6035B-03Z002-PT
▲ CP401	AE006075	069X460109	CONNECTOR PCB SIDE B06B-DVS-L (LF)
▲ CP501	BZ614176	069S320419	CONNECTOR PCB SIDE A3963WV2-3PD
▲ CP502	BZ614283	069S420110	CONNECTOR PCB SIDE A1561WV2-2P
CP507	BZ614444	069D01001A	CONNECTOR PCB SIDE 003P-2100
CP508	BZ614444	069D01001A	CONNECTOR PCB SIDE 003P-2100
CP701	AD301998	069S240629	CONNECTOR PCB SIDE A2001WV2-4P
CP803	AD301996	069S330010	CONNECTOR PCB SIDE A2361WV2-3P

# ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
<b>MISCELLANEOUS</b>			
CP804	BZ614058	069W010010	CONNECTOR PCB SIDE 005P-2100
CP852	BZ614350	069S230629	CONNECTOR PCB SIDE A2001WV2-3P
CD1001	AE007503	06C3142502	CORD,CONNECTOR C3142502
CD1002	AE007504	06C3222801	CORD,CONNECTOR C3222801
CD1003	AE007505	06C3226201	CORD,CONNECTOR C3226201
CP1001	AD301045	069S140419	CONNECTOR PCB SIDE A2502WV2-4P
CP801A	BZ614276	067U005049	WIRE HOLDER B2013H02-5P
CP801B	AD300752	069S250629	CONNECTOR PCB SIDE A2001WV2-5P
CP802A	AD301997	067U007029	WIRE HOLDER B2013H02-7P
CP802B	BZ614485	069S270629	CONNECTOR PCB SIDE A2001WV2-7P
CP851A	BZ614334	067U004029	WIRE HOLDER B2013H02-4P
CP851B	AD301998	069S240629	CONNECTOR PCB SIDE A2001WV2-4P
EL001	BZ614044	124120301A	EYE LET XRY20X30BD
EL002	BZ614043	124116281A	EYE LET XRY16X28BD
△F501	BZ614422	081PC6R305	FUSE 51MS063L
△FB401	AE007500	043232014F	TRANSFORMER,FLYBACK FUH32F001
FH501	AE002634	06710T0009	HOLDER,FUSE EYF-52BCY
FH502	AE002634	06710T0009	HOLDER,FUSE EYF-52BCY
OS101	AD301048	0773071001	REMOTE RECEIVER RPM7138-WH5
△RY501	AE006070	0560X20118	RELAY G5PA-1-SA(WEC)
△SP1001	AE007511	070W457010	SPEAKER MSF-2D5D10WD
△SP1002	AE007511	070W457010	SPEAKER MSF-2D5D10WD
△TH501	BZ410079	DF5EL3R0A0	DEGAUSS ELEMENT ZPB45BL3R0A
TM101	AE003009	076R0GW020	TRANSMITTER R25-1943
△TU001	AE006069	0163300018	RF UNIT 115-V-KA35ARB
△V801	AE007512	098T320D01	CRT W/DY A80ERF182X18L
X101	AD302002	100CT8R005	CRYSTAL HC-49/U-S
X602	AD301653	100DT3R531	CRYSTAL HC-49/U

**RESISTOR**

RC..... CARBON RESISTOR

**CAPACITORS**

CC..... CERAMIC CAPACITOR  
 CE..... ALUMI ELECTROLYTIC CAPACITOR  
 CP..... POLYESTER CAPACITOR  
 CPP..... POLYPROPYLENE CAPACITOR  
 CPL..... PLASTIC CAPACITOR  
 CMP..... METAL POLYESTER CAPACITOR  
 CMPL..... METAL PLASTIC CAPACITOR  
 CMPP..... METAL POLYPROPYLENE CAPACITOR

# ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
<b>RESISTORS</b>			
△ R402	AE006295	R65501680J	R,FUSE 68 OHM 1W
△ R410	AE004890	R3X18A681J	R,METAL OXIDE 680 OHM 2W
△ R416	BZ210053	R002T22R2J	RC 2.2 OHM 1/2W
△ R420	BZ210053	R002T22R2J	RC 2.2 OHM 1/2W
△ R426	BZ210030	R4X5T4472F	R,METAL 4.7K OHM 1/4W
△ R434	AE007521	R5X2CF8R2J	R,CEMENT 8.2 OHM 10W
△ R436	BZ210023	R4X5T4183F	R,METAL 18K OHM 1/4W
△ R438	AE000037	R3X28B3R9J	R,METAL 3.9 OHM 3W
△ R439	BZ210003	R3K181102J	R,METAL OXIDE 1K OHM 1W
R440	AE007520	R00202105J	RC 1M OHM 1/2W
△ R441	BZ210231	R4X5T6153F	R,METAL 15K OHM 1/6W
△ R452	AD301385	R3X18A391J	R,METAL OXIDE 390 OHM 2W
△ R459	AE003590	R655822R2J	R,FUSE 2.2 OHM 1/2W
△ R500	BZ210080	R0G3K2275K	RC 2.7M OHM 1/2W
△ R501	BZ210117	R5X2CE010J	R,CEMENT 1 OHM 7W
△ R502	BZ210249	R3X28A331J	R,METAL OXIDE 330 OHM 2W
△ R506	BZ210162	R002T4682J	RC 6.8K OHM 1/4W
R507	AE002597	R00202823J	RC 82K OHM 1/2W
△ R517	BZ210191	R3X28B010J	R,METAL OXIDE 1 OHM 3W
△ R520	BZ210206	R002T2155J	RC 1.5M OHM 1/2W
△ R527	BZ210149	R3X18AR68J	R,METAL OXIDE 0.68 OHM 2W
△ R541	AE005735	R63881R22J	R,FUSE 0.22 OHM 1W
△ R542	BZ210268	R3X181R12J	R,METAL OXIDE 0.12 OHM 1W
△ R601	AE006340	R3X181150J	R,METAL OXIDE 15 OHM 1W
△ R602	AD301975	R3X28B120J	R,METAL OXIDE 12 OHM 3W
△ R649	AD301975	R3X28B120J	R,METAL OXIDE 12 OHM 3W
△ R804	BZ210026	R3X18A153J	R,METAL OXIDE 15K OHM 2W
△ R806	BZ210026	R3X18A153J	R,METAL OXIDE 15K OHM 2W
△ R808	BZ210026	R3X18A153J	R,METAL OXIDE 15K OHM 2W
R832	AE000901	R00202220J	RC 22 OHM 1/2W
△ R855	AD301019	R65582331J	R,FUSE 330 OHM 1/2W
△ R881	BZ210087	R3X18A221J	R,METAL OXIDE 220 OHM 2W
<b>CAPACITORS</b>			
C156	AE004040	P6M900105J	CMPL 1 UF 50V TF
C408	BZ210176	E02LF3222M	CE 2200 UF 25V
△ C412	AE004368	P4N8FK182H	CMPP 0.0018UF 1.5KV
△ C413	AE000814	E0ELF4222M	CE 2200 UF 35V
C418	BZ110174	P4J7F3334J	CMPP 0.33 UF 250V PMS
△ C420	AE007519	P4G8FJ123H	CMPP 0.012 UF 1.25KV PHE
△ C421	AD300048	P3N1F5183J	CPP 0.018 UF 630V
C425	BZ110202	C0PLRR713K	CC 0.001 UF 2KV R
△ C426	BZ110225	E5EZFD220M	CE 22 UF 250V
△ C430	BZ110195	E02LU8220M	CE 22 UF 100V
C442	AE006084	E736F56R8M	CE 6.8 UF 50V
△ C501	AD300067	E02LF4102M	CE 1000 UF 35V
△ C502	BZ110202	C0PLRR713K	CC 0.001 UF 2KV R
△ C503	BZ110202	C0PLRR713K	CC 0.001 UF 2KV R
△ C504	AE000467	E02LU54R7M	CE 4.7 UF 50V
△ C505	BZ110025	P2122B224M	CMP 0.22 UF 275V ECQUL
△ C506	BZ110035	P2122B104M	CMP 0.1 UF 275V ECQUL
C507	AE000417	E51DFC821M	CE 820 UF 200V
△ C508	BZ110222	CD39E0MH3M	CC 0.0022UF 250V
△ C513	AD301026	CD39E0M13M	CC 0.001 UF 250V
△ C514	AD300067	E02LF4102M	CE 1000 UF 35V
△ C517	BZ110178	C03L0R7B3K	CC 0.0012UF 2KV R
△ C519	AD301026	CD39E0M13M	CC 0.001 UF 250V
△ C521	BZ110228	E62NFB221M	CE 220 UF 160V
△ C527	BZ110119	E02LF2222M	CE 2200 UF 16V
△ C535	AE000874	C0PLRR7E3K	CC 0.0015 UF 2KV R
C615	AE003280	E52H05010M	CE 1 UF 50V
C808	BZ110226	C0JBB07H3K	CC 0.0022UF 2KV B
C1003	BZ210176	E02LF3222M	CE 2200 UF 25V
C1004	BZ110053	E02LF3102M	CE 1000 UF 25V
C1009	BZ110053	E02LF3102M	CE 1000 UF 25V
<b>DIODES</b>			
D001	BZ410037	D97U03301B	DIODE,ZENER MTZJ33B T-77
D104	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D105	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D106	BZ410020	D97U05R11B	DIODE,ZENER MTZJ5.1B T-77
D107	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77
D108	BZ410006	D1VT001330	DIODE,SILICON 1SS133T-77

# ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
			<b>DIODES</b>
D109	BZ410054	0021721150	LED
D110	BZ410006	D1VT001330	DIODE,SILICON
D113	BZ410021	D97U05R61B	DIODE,ZENER
D402	BZ410043	D2WT011E10	DIODE,SILICON
D403	BZ410019	D97U03001B	DIODE,ZENER
D404	BZ410020	D97U05R11B	DIODE,ZENER
▲D405	BZ410063	D2WTAU02A0	DIODE,SILICON
▲D406	BZ410021	D97U05R61B	DIODE,ZENER
▲D407	BZ410063	D2WTAU02A0	DIODE,SILICON
D408	AD302110	D2CF0715L0	DIODE,SILICON
D409	AD301980	D2CF2016L0	DIODE,SILICON
D410	BZ410019	D97U03001B	DIODE,ZENER
▲D411	BZ410063	D2WTAU02A0	DIODE,SILICON
D414	BZ410043	D2WT011E10	DIODE,SILICON
D415	BZ410043	D2WT011E10	DIODE,SILICON
D416	BZ410006	D1VT001330	DIODE,SILICON
D417	BZ410006	D1VT001330	DIODE,SILICON
D419	BZ410006	D1VT001330	DIODE,SILICON
▲D501	BZ410062	D2WTRM11C0	DIODE,SILICON
▲D502	BZ410062	D2WTRM11C0	DIODE,SILICON
▲D503	BZ410062	D2WTRM11C0	DIODE,SILICON
▲D504	BZ410062	D2WTRM11C0	DIODE,SILICON
▲D505	AE006082	D28F0PRA60	DIODE,RECTIFIER
▲D506	AE007489	D2MXN49370	DIODE,FAST RECOVERY
D507	BZ410006	D1VT001330	DIODE,SILICON
D509	BZ410034	D97U01301B	DIODE,ZENER
▲D510	AD301980	D2CF2016L0	DIODE,SILICON
▲D511	AE007489	D2MXN49370	DIODE,FAST RECOVERY
▲D512	BZ410010	D28T21DQN9	DIODE,SCHOTTKY
D513	BZ410006	D1VT001330	DIODE,SILICON
D514	BZ410006	D1VT001330	DIODE,SILICON
D516	BZ410006	D1VT001330	DIODE,SILICON
D517	BZ410006	D1VT001330	DIODE,SILICON
D520	BZ410006	D1VT001330	DIODE,SILICON
▲D523	AD300671	D97U01801B	DIODE,ZENER
D524	BZ410006	D1VT001330	DIODE,SILICON
D525	BZ410113	D97U02201B	DIODE,ZENER
D528	BZ410021	D97U05R61B	DIODE,ZENER
D601	BZ410006	D1VT001330	DIODE,SILICON
D602	BZ410058	D97U08R21B	DIODE,ZENER
D604	AD300070	D97U01201B	DIODE,ZENER
D605	BZ410006	D1VT001330	DIODE,SILICON
D606	BZ410006	D1VT001330	DIODE,SILICON
D607	BZ410006	D1VT001330	DIODE,SILICON
D608	BZ410043	D2WT011E10	DIODE,SILICON
D610	BZ410022	D97U06R81B	DIODE,ZENER
D611	BZ410022	D97U06R81B	DIODE,ZENER
D612	BZ410022	D97U06R81B	DIODE,ZENER
D701	AD300070	D97U01201B	DIODE,ZENER
D702	AD300070	D97U01201B	DIODE,ZENER
D703	AD300070	D97U01201B	DIODE,ZENER
D704	AD300070	D97U01201B	DIODE,ZENER
D705	AD300070	D97U01201B	DIODE,ZENER
D709	BZ410066	D97U06R21B	DIODE,ZENER
D801	BZ410006	D1VT001330	DIODE,SILICON
D802	BZ410006	D1VT001330	DIODE,SILICON
D803	BZ410006	D1VT001330	DIODE,SILICON
D807	BZ410006	D1VT001330	DIODE,SILICON
D808	BZ410006	D1VT001330	DIODE,SILICON
D809	BZ410006	D1VT001330	DIODE,SILICON
D852	BZ410006	D1VT001330	DIODE,SILICON
D853	BZ410006	D1VT001330	DIODE,SILICON
D854	BZ410006	D1VT001330	DIODE,SILICON
D855	BZ410006	D1VT001330	DIODE,SILICON
D856	BZ410006	D1VT001330	DIODE,SILICON
D857	AE006060	D28T0ERB20	DIODE,RECTIFIER
D858	AE006060	D28T0ERB20	DIODE,RECTIFIER
			<b>ICS</b>
IC101	AE006067	I56F07090B	IC
IC199	AE007523	A3S902J015	INIT DATA
IC301	AE006297	I0QJ021500	IC

# ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
			<b>ICS</b>
IC302	AD301983	I01FF58910	AN5891SA-E1V
△ IC401	BZ611117	I03TD80410	LA78041
△ IC504	BZ410088	0002E00610	PHOTO COUPLER
IC601	AE002803	I06FC1283A	IC
IC701	AD301988	I0UF015010	IC
IC702	AD301988	I0UF015010	IC
IC902	BZ611068	I01FF58290	IC
△ IC1001	AE003081	I0FSP7808B	IC
IC1501	AE003002	I03FE76605	IC
IC1502	AD301988	I0UF015010	IC
IC1503	AD301988	I0UF015010	IC
			<b>TRANSISTORS</b>
Q101	AE005873	T8RA030520	TRANSISTOR,SILICON
Q103	AE005873	T8RA030520	TRANSISTOR,SILICON
Q201	BZ510105	TCAT03209Y	TRANSISTOR,SILICON
Q202	BZ510070	TCAT032034	TRANSISTOR,SILICON
△ Q402	BZ510097	TCAT03227Y	TRANSISTOR,SILICON
△ Q405	AD302136	TD50026380	TRANSISTOR,SILICON
Q408	BZ510073	TAATA12660	TRANSISTOR,SILICON
△ Q409	BZ510073	TAATA12660	TRANSISTOR,SILICON
△ Q410	BZ510110	TC30041590	TRANSISTOR,SILICON
Q411	AE005873	T8RA030520	TRANSISTOR,SILICON
△ Q502	BZ510098	T220033260	FET
△ Q503	BZ510005	TA3T1371A0	TRANSISTOR,SILICON
Q504	BZ510069	TCATC31980	TRANSISTOR,SILICON
△ Q505	BZ510011	TC3T029090	TRANSISTOR,SILICON
△ Q507	BZ510069	TCATC31980	TRANSISTOR,SILICON
△ Q508	BZ510077	TAAT012714	TRANSISTOR,SILICON
Q509	BZ510069	TCATC31980	TRANSISTOR,SILICON
△ Q512	BZ510004	TA3T016240	TRANSISTOR,SILICON
△ Q514	BZ510070	TCAT032034	TRANSISTOR,SILICON
Q601	BZ510105	TCAT03209Y	TRANSISTOR,SILICON
Q602	BZ510105	TCAT03209Y	TRANSISTOR,SILICON
Q603	AE005873	T8RA030520	TRANSISTOR,SILICON
Q604	BZ510105	TCAT03209Y	TRANSISTOR,SILICON
Q605	AE005873	T8RA030520	TRANSISTOR,SILICON
Q607	BZ510070	TCAT032034	TRANSISTOR,SILICON
Q610	AE005873	T8RA030520	TRANSISTOR,SILICON
Q611	BZ510105	TCAT03209Y	TRANSISTOR,SILICON
Q613	AE005873	T8RA030520	TRANSISTOR,SILICON
Q614	AE005872	T6RA015300	TRANSISTOR,SILICON
Q709	AE005872	T6RA015300	TRANSISTOR,SILICON
Q711	AE005873	T8RA030520	TRANSISTOR,SILICON
Q712	AE005873	T8RA030520	TRANSISTOR,SILICON
△ Q801	BZ510009	TC3F042170	TRANSISTOR,SILICON
△ Q802	BZ510009	TC3F042170	TRANSISTOR,SILICON
△ Q803	BZ510009	TC3F042170	TRANSISTOR,SILICON
△ Q810	BZ510100	TCATC3199Y	TRANSISTOR,SILICON
△ Q811	BZ510100	TCATC3199Y	TRANSISTOR,SILICON
△ Q812	BZ510100	TCATC3199Y	TRANSISTOR,SILICON
Q852	BZ510069	TCATC31980	TRANSISTOR,SILICON
Q853	AE004818	TCUT0752GY	TRANSISTOR,SILICON
Q854	BZ510069	TCATC31980	TRANSISTOR,SILICON
Q855	BZ510069	TCATC31980	TRANSISTOR,SILICON
Q856	BZ510069	TCATC31980	TRANSISTOR,SILICON
Q857	BZ510073	TAATA12660	TRANSISTOR,SILICON
Q858	AD300029	TAU0018370	TRANSISTOR,SILICON
Q859	AD300025	TCU0047930	TRANSISTOR,SILICON
Q901	AE005872	T6RA015300	TRANSISTOR,SILICON
Q902	AE005872	T6RA015300	TRANSISTOR,SILICON
Q1001	AE006306	TNRAB05005	COMPOUND TRANSISTOR
Q1503	AE005873	T8RA030520	TRANSISTOR,SILICON
Q1504	AE005873	T8RA030520	TRANSISTOR,SILICON
Q1507	AE005873	T8RA030520	TRANSISTOR,SILICON
Q1508	AE005873	T8RA030520	TRANSISTOR,SILICON
			<b>COILS &amp; TRANSFORMERS</b>
L301	BZ310041	02167F101J	COIL
L401	AE007497	021U6D472K	COIL
L402	AE007498	022K00047A	COIL,LINEARITY
L403	AD301606	02DK000058	COIL,CHOKE
△ L501	AD301124	029T000101	COIL,LINE FILTER

# ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
<b>COILS &amp; TRANSFORMERS</b>			
△ L503	AE007499	028R320007	COIL,DEGAUSS 8R320007
L601	AD301990	021LA6330J	COIL 33 UH
L801	BZ310002	021673101K	COIL 100 UH
L802	BZ310170	021673151K	COIL 150 UH
L803	BZ310170	021673151K	COIL 150 UH
L804	BZ310170	021673151K	COIL 150 UH
L901	BZ310041	02167F101J	COIL 100 UH
L1501	BZ310041	02167F101J	COIL 100 UH
L1502	BZ310039	02167F220J	COIL 22 UH
L1503	BZ310039	02167F220J	COIL 22 UH
L1505	AD300613	02167F150J	COIL 15 UH
L1508	BZ310041	02167F101J	COIL 100 UH
L1510	AD300613	02167F150J	COIL 15 UH
L1511	AD300613	02167F150J	COIL 15 UH
L1512	BZ310183	021LA6220J	COIL 22 UH
T401	BZ310189	0450190161	TRANS,HORIZONTAL DRIVE ETH19Y203AY
△ T501	AE007501	0481420724	TRANSFORMER,SWITCHING 81420724
<b>JACKS</b>			
J701	AE002759	060J431020	RCA JACK MSP-213V2-432_NI_LF
J702	AE006074	063Q700011	JACK YKF51-5503N
J703	AE002759	060J431020	RCA JACK MSP-213V2-432_NI_LF
J704	AE002761	060J411032	RCA JACK MSP-213V1-652_NI_LF
J708	AE002759	060J431020	RCA JACK MSP-213V2-432_NI_LF
J751	AE006073	060Q421048	RCA JACK AV1-06ADS-2
J752	AE006072	060Q401109	RCA JACK AV1-06AD-4
J753	AE006071	060Q401108	RCA JACK AV1-06AD-3
△ J801	AD301936	066F130021	SOCKET,CATHODE RAY,TUBE ISHS62S
△ J1002	AE007502	060G131017	HEADPHONE JACK HTJ-035-28ABBP
<b>SWITCHES</b>			
SW101	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW102	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW103	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW104	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
SW105	BZ612010	0504101T34	SWITCH,TACT EVQ21505R
<b>VARIABLE RESISTORS</b>			
VR401	BZ210218	V1K63H3BTE	VOLUME,SEMI FIXED NVG6TLTAB222
VR502	BZ210101	V1163H4BTC	VOLUME,SEMI FIXED EVNCYAA03BE4
<b>P.C.BOARD ASSEMBLIES</b>			
PCB010	AE007522	A3S902J010L	PCB ASS'Y CMD016C
PCB110	AE007516	A3S901J110L	PCB ASS'Y CCD014A
PCB240	AE007517	A3S901J240L	PCB ASS'Y CED039A
PCB280	AE007518	A3S901J280L	PCB ASS'Y CED038A
<b>MISCELLANEOUS</b>			
B401	BZ310129	024HT03564	CORE,BEADS W4BRH3.5X6X1.0
B402	BZ310129	024HT03564	CORE,BEADS W4BRH3.5X6X1.0
B405	BZ310129	024HT03564	CORE,BEADS W4BRH3.5X6X1.0
△ B501	BZ310045	024AT03481	CORE,BEADS BL022RN1-R62T2
△ B504	BZ310121	024HT03553	CORE,BEADS W5RH3.5X5X1.0
B851	BZ310121	024HT03553	CORE,BEADS W5RH3.5X5X1.0
B852	BZ310121	024HT03553	CORE,BEADS W5RH3.5X5X1.0
B853	BZ310121	024HT03553	CORE,BEADS W5RH3.5X5X1.0
BT001	AE005640	141R004016	BATTERY,MANGAN GR03X-SP2
BT002	AE005640	141R004016	BATTERY,MANGAN GR03X-SP2
CD401	AE007507	06CH466001	CORD,CONNECTOR CH466001
△ CD501	AE007513	1209615905	CORD,AC BUSH 9615905
CD701	AE006076	06C3242006	CORD,CONNECTOR C3242006
CD801	AE007509	06CU254802	CORD,CONNECTOR CU254802
CD802	AE007510	06CU276002	CORD,CONNECTOR CU276002
CD803	AE003007	06CU83036A	CORD,CONNECTOR CU83036A
CD851	AE007508	06CU245801	CORD,CONNECTOR CU245801
CD852	AE007506	06CH232006	CORD,CONNECTOR CH232006
CP101	BZ614102	0694270139	CONNECTOR PCB SIDE 173979-7
CP201	AE006332	069J130340	CONNECTOR PCB SIDE IMSA-6035B-03Z002-PT
△ CP401	AE006075	069X460109	CONNECTOR PCB SIDE B06B-DVS-L (LF)
△ CP501	BZ614176	069S320419	CONNECTOR PCB SIDE A3963WV2-3PD
△ CP502	BZ614283	069S420110	CONNECTOR PCB SIDE A1561WV2-2P
CP507	BZ614444	069D01001A	CONNECTOR PCB SIDE 003P-2100
CP508	BZ614444	069D01001A	CONNECTOR PCB SIDE 003P-2100
CP701	AD301998	069S240629	CONNECTOR PCB SIDE A2001WV2-4P
CP803	AD301996	069S330010	CONNECTOR PCB SIDE A2361WV2-3P
CP804	BZ614058	069W010010	CONNECTOR PCB SIDE 005P-2100

# ELECTRICAL REPLACEMENT PARTS LIST

Location No.	TSB P/N	Reference No.	Description
<b>MISCELLANEOUS</b>			
CP852	BZ614350	069S230629	CONNECTOR PCB SIDE
CD1001	AE007503	06C3142502	CORD,CONNECTOR
CD1002	AE007504	06C3222801	CORD,CONNECTOR
CD1003	AE007505	06C3226201	CORD,CONNECTOR
CP1001	AD301045	069S140419	CONNECTOR PCB SIDE
CP801A	BZ614276	067U005049	WIRE HOLDER
CP801B	AD300752	069S250629	CONNECTOR PCB SIDE
CP802A	AD301997	067U007029	WIRE HOLDER
CP802B	BZ614485	069S270629	CONNECTOR PCB SIDE
CP851A	BZ614334	067U004029	WIRE HOLDER
CP851B	AD301998	069S240629	CONNECTOR PCB SIDE
EL001	BZ614044	124120301A	EYE LET
EL002	BZ614043	124116281A	EYE LET
△F501	BZ614422	081PC6R305	FUSE
△FB401	AE007500	043232014F	TRANSFORMER,FLYBACK
FH501	AE002634	06710T0009	HOLDER,FUSE
FH502	AE002634	06710T0009	HOLDER,FUSE
OS101	AD301048	0773071001	REMOTE RECEIVER
△RY501	AE006070	0560X20118	RELAY
△SP1001	AE007511	070W457010	SPEAKER
△SP1002	AE007511	070W457010	SPEAKER
△TH501	BZ410079	DF5EL3R0A0	DEGAUSS ELEMENT
TM101	AE003009	076R0GW020	TRANSMITTER
△TU001	AE006069	0163300018	RF UNIT
△V801	AE007512	098T320D01	CRT W/DY
X101	AD302002	100CT8R005	CRYSTAL
X602	AD301653	100DT3R531	CRYSTAL

**RESISTOR**

RC..... CARBON RESISTOR

**CAPACITORS**

CC..... CERAMIC CAPACITOR  
 CE..... ALUMI ELECTROLYTIC CAPACITOR  
 CP..... POLYESTER CAPACITOR  
 CPP..... POLYPROPYLENE CAPACITOR  
 CPL..... PLASTIC CAPACITOR  
 CMP..... METAL POLYESTER CAPACITOR  
 CMPL..... METAL PLASTIC CAPACITOR  
 CMPP..... METAL POLYPROPYLENE CAPACITOR

# **TOSHIBA CORPORATION**

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